Note remarks

: MAC 11,1a18 : 04.09.90 Test sheet Edition : 2.5.90 Replaces

Test oil : ISO-4113

: 0 402 746 849 Combination no.

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

: RQV325...850PA878-10 Governor design.

: 0 421 815 209 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E6 275 4VH Engine

: 202.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 4,3 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.5...4.7 Del.quantity cm3/ : 3.2...3.8

100 s: (3.0...4.0) cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

: 850 3rd speed rpm

travel mm : 6.20...6.40

4th speed : 1000 rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850 Aneroid pressure h: 900

Anerus Del.quantity 1000 : 183.0...185.0

: (180.0...188.0)

: 5.00 Spread cm3 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00

rpm : 1025...1055 Speed

4th rack travel in: 1100

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

: 275 Speed rpm Minimum rack trave: 6.10 rpm

Rack travel in mm : 4.50...4.70

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

: ? Dimension a mm

Torque control curve - 1st version

: 850 1st speed rpm

Rack travel in m: 11.90...12.90

: 700 2nd speed rpm

Rack travel in m: 12.80...12.90

rpm : 600 3rd speed

Rack travel in m: 13.00...13.10

4th speed rpm : 500

Rack travel in m: 0.00...12.80

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 600 rom hPa : 900 Pressure

: 13.00...13.10 Rack travel mm

Measurement

 $1/\min : 600$ Speed

1st pressure hPa : -

Rack travel in m: 10.30...10.50 2nd pressure hPa : 225 Rack travel in m: 11.00...11.10

3rd pressure hPa : 385

Rack travel in m: 12.20...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 600 Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: 900 Speed : 850 rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (141.5...162.5)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.90

rpm : 900...910 Speed

INTERMEDIATE RATED SPEED

Rack travel in mm: 11.30.

: 805 Speed rpm

Rack travel in mm: 4.60 Speed rpm

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm: 10.30...10.50

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 4.50...4.70 Del.quantity cm3/: 32.0...38.0

1000 s: (30.0...40.0) cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P4

Delivery-valve spring pre-tension

3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder

assemblies on an injection-pump test

bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 11,1a13 : 04.09.90 Test sheet Edition : 02.05.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 850

Injection pump

Pump designation : PES6P120A720RS7135

: 0 412 726 807 EP type number

Governor

Governor design. : RQV325...900PA848-24

: 0 421 815 207 Governer no.

Customer—spec. information

: MACK TRUCKS INC. Customer

Engine : E6-350

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 14.80...14.90

Del.quantity cm3/: 24.8...25.0

100 s: (24.5...25.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 3.10...3.30 travel mm

rpm : 850 3rd speed

: 5.90...6.10 travel mm

: 1000 4th speed rpm

: 7.50...7.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Aneroid pressure h: 1200 Del.quantity : 240.3...253.5)

: 5.00 cm3 Spread

: (9.00) 1000

RATED SPEED

1st version Control lever

position degrees: 56...64

Testing:

1st rack travel in: 13.80 Speed rpm : 950...960 2nd rack travel in: 4.00

rpm : 1075...1105 Speed

4th rack travel in: 1200

rom : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 7...15

Testing:

: 275 Speed rom Minimum rack trave: 6.60 : 325 Speed

Rack travel in mm : 4.90...5.10

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

rpm : 900 1st speed

Rack travel in m: 14.80...14.90

: 625 2nd speed rpm

Rack travel in m: 15.20...15.30

: 700 3rd speed rpm

Rack travel in m: 15.00...15.10

4th speed rpm : 500

Rack travel in m: 0.00...14.90

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 625 rpm Pressure hPa : 1200

Rack travel mm : 15.20...15.30

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 8.30...8.70

2nd pressure hPa : 310

Rack travel in m: 10.20...10.30 3rd pressure hPa : 710

Rack travel in m: 13.70...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625 Del.quantity cm3/ : 271.0...277.0 1000 s: (268.0...280.0)

cm3 : 8.00 1000 s: (12.0) Spread

Aneroid pressure h: 1200 Speed rpm : 850

Del.quantity cm3/: 159.0...161.0 * 1000 s: (141.5...162.5)

Aneroid pressure h:

Speed rpm : 400 Del.quantity cm3/: 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80

rpm : 950...960 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...170.0 1000 s: (120.0...180.0)

Rack travel in mm : 8.30...8.70

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P10

Delivery—valve spring pre—tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection pump test

bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MAC 11,1a14 : 04.09.90 Edition : 02.05.90 Replaces : ISO-4113 Test oil

: 0 402 746 851 Combination no.

Injection pump

Pump designation : PES6P120A720RS7135 : 0 412 726 807 EP type number

Governor

: RQV325...850PA848-25 Governor design.

: 0 421 815 208 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E6 275 4VH Engine

: 202.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 101

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test Lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm : (2.70...2.90)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 18.3...18.5

100 s: (18.0...18.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm : 4.4...4.6 Del.quantity cm3/: 3.2...3.8

100 s: (3.0...4.0)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.10

: 850

3rd speed rpm travel mm

: 6.20...6.40 : 1000

4th speed rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Aneroid pressure h: 900

Del.quantity : 183.0...188.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED

1st version Control lever position degrees: 50...58 Testina: 1st rack travel in: 10.90 rpm : 900...910 Speed 2nd rack travel in: 4.00 rpm : 1020...1050 Speed 4th rack travel in: 1100 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testina: Speed rpm Minimum rack trave: 6.00 : 325 Speed rpm Rack travel in mm : 4.40...4.60 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL : ? Dimension a mm Torque control curve - 1st version rpm : 850 1st speed Rack travel in m: 11.90...12.00 2nd speed rpm : 700 Rack travel in m: 12.50...12.70 : 600 3rd speed rom Rack travel in m: 12.90...13.10 : 500 rpm 4th speed Rack travel in m: 0.00...12.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 man Pressure hPa : 900 : 13.00...13.10 Rack travel mm Measurement Speed 1/min: 600 1st pressure hPa : -Rack travel in m: 9.90...10.30 2nd pressure hPa : 225 Rack travel in m: 11.00...11.10 3rd pressure hPa : 385 Rack travel in m: 12.20...12.60 FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed : 600 rpm Del.quantity cm3/: 219.5...225.5 1000 s: (216.5...228.5) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 900 Speed rpm: 850 Del.quantity cm3/: 159.0...161.0 * 1000 s: (141.5...162.5) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.90 rpm : 900...910 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 195.0...235.0 1000 s: (185.0...245.0) Rack travel in mm : 9.90...10.30

LOW IDLE

Speed rpm : 325
Rack travel in mm : 4.40...4.60
Del.quantity cm3/: 32.0...38.0
1000 s: (30.0...40.0)
Spread cm3 : 8.00
1000 s: (12.00)

Remarks:

: MACK # 313GC5184-P2

Delivery—valve spring pre—tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : MAC 12,0 a3 : 04.09.90 Edition : 2.5.90 Replaces Test oil : ISO-4113

: 0 402 746 852 Combination no.

Injection pump

Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number

Governor

Governor design. : RQV325...900PA909K

: 0 421 815 210 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: E7-400 Engine

: 298.0 1st version kW : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-189-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 15.80...15.90

Del.quantity cm3/: 27.5...27.7

100 s: (27.2...28.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 5.1...5.3

Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 2.80...3.20 travel mm

: 650 3rd speed rpm

: 5.60...5.80 travel mm

: 900 4th speed rpm

: 8.30...8.50 travel mm

: 1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed

Aneroid pressure h: 1200

: 275.0...277.0 Del.quantity 1000 : (272.0...280.0)

: 5.00 Spread cm3

: (9.00) 1000

RATED SPEED 1st version Control lever position degrees: 58...56 Testina: 1st rack travel in: 14.80 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1105...1135 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rom Minimum rack trave: 6.30 : 325 Speed rpm Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 900 Rack travel in m: 15.80...15.90 nd speed rpm : 625 Rack travel in m: 15.20...15.40 2nd speed : 700 3rd speed rpm Rack travel in m: 15.40...15.60 : 500 4th speed rom Rack travel in m: 0.00...13.50 Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm Pressure hPa : 1200 Rack travel mm : 15.80...15.90 Measurement Speed 1/min: 900 1st pressure hPa : -

Rack travel in m: 8.50...8.90 2nd pressure hPa : 325 Rack travel in m: 10.20...10.30 3rd pressure hPa : 790 Rack travel in m: 13.80...14.20 START CUT-OUT

1/min: 275 (285) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 625 Speed rom Del.guantity cm3/: 302.5...308.5 1000 s: (299.5...311.5) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 Speed : 850 rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 14.80 rpm : 940...950 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0) Rack travel in mm : 10.80...11.40

LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

Spread : 8.00 cm31000 s: (12.00)

Remarks:

: MACK # 313GC5185-P6

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

: MAC 12.0 a4 : 04.09.90 Test sheet Edition : 02.05.90 Replaces : ISO-4113 Test oil

: 0 402 746 853 Combination no.

Injection pump

Pump designation : PES6P120A720RS7157

: 0 412 726 814 EP type number

Governor

Governor design. : RQV325...900PA909-1K

: 0 421 815 211 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: E7-350 Engine

: 261.0 1st version kW Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 23.1...23.3

100 s: (22.9...23.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.02nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rom : 1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.20

3rd speed : 650 rpm

: 5.60...5.80 travel mm

: 900 4th speed rpm

: 8.30...8.50 travel mm

: 1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

: 231.5...233.5

Aneroid ... Del.quantity 1000 : (229.5...235.5) : 5.00 Spread cm3

: (9.00) 1000

A11

RATED SPEED 1st version Control lever position degrees: 58...56 Testing: 1st rack travel in: 12.60 Speed rpm : 940...950 2nd rack travel in: 4.00 Speed rpm: 1080...1110 4th rack travel in: 1200 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 5.90 : 325 Speed rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 13.60...13.70 2nd speed rpm : 625 Rack travel in m: 13.30...13.50 od speed rpm : 500 Rack travel in m: 0.00...12.00 3rd speed Aneroid/Altitude Compensator Test 1st version Setting : 900 Speed rpm hPa : 1200 Pressure : 13.60...13.70 Rack travel mm Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 325 Rack travel in m: 9.40...9.50 3rd pressure hPa : 685

Rack travel in m: 12.10...12.50

1/min: 275 (285)

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 625 Speed rpm Del.quantity cm3/: 263.0...269.0 1000 s: (260.0...272.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 850 Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 153.0...157.0 1000 s: (151.0...159.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 940...950 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm: 10.30...10.90 LOW IDLE Speed rpm : 325 Rack travel in mm: 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) : 8.00 Spread cm3 1000 s: (12.00) Remarks:

: MACK # 313GC5185-P2

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Speed

START CUT-OUT

Note remarks

Test sheet : MAC 11,1 f1 : 04.09.90 Edition : 2.5.90 Replaces Test oil : ISO-4113

: 0 402 746 861 Combination no.

Injection pump

Pump designation : PES6P120A720RS7183

: 0 412 726 825 EP type number

Governor

Governor design. : RQV325...875PA848-26

Governer no. : 0 421 815 212

Customer-spec. information

: MACK TRUCKS Customer

: EM 6-300L Engine

1st version kW : 183.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 6.00...8.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.7...4.9 Del.quantity cm3/ : 4.1...4.7 100 s: (3.9...4.9)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 325 : 1.20...1.40 travel mm

2nd speed rpm : 450

: 2.50...2.80 travel mm

rpm : 600 3rd speed

: 4.10...4.30 travel mm

rpm : 875 4th speed

: 6.90...7.10 travel mm

rpm : 1000 5th speed

travel mm : 8.20...8.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1500 Del.quantity : 209.0...214.0)

: 5.00 Spread cm3 1000 : (9.00) RATED SPEED 1st version Control lever position degrees: 55...63 Testing: 1st rack travel in: 10.20 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1000...1030 Speed 4th rack travel in: 1150 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 6.30 : 325 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.20...11.30 od speed rpm : 510 2nd speed Rack travel in m: 16.60...16.80 : 700 3rd speed man Rack travel in m: 13.20...13.40 rpm : 600 4th speed Rack travel in m: 15.20...15.60 : 420 5th speed rpm Rack travel in m: 0.00...16.60 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rpm hPa : 1500 Pressure Rack travel mm : 16.60...16.80 Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.70...9.10 2nd pressure hPa : 435

Rack travel in m: 10.80...11.00 3rd pressure hPa : 795 Rack travel in m: 14.60...15.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 Speed rpm : 510 Del.quantity cm3/ : 308.0...314.0 1000 s: (305.0...317.0) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm Del.quantity cm3/: 199.0...201.0 * 1000 s: (167.0...192.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 154.0...158.0 1000 s: (152.0...160.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.20 Speed rpm : 915...925 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0) Rack travel in mm : 8.70...9.10 LOW IDLE Speed rpm : 325
Rack travel in mm : 4.70...4.90
Del.quantity cm3/ : 41.0...47.0
1000 s: (39.0...49.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5174-P6 Delivery-valve spring pre-tension 3.0...3.2 mm. * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC 11,1 f
Edition : 04.09.90
Replaces : 02.05.90
Test oil : ISO-4113

Combination no. : 0 402 746 862

Injection pump

Pump designation : PES6P120A720RS7183

EP type number : 0 412 726 825

Governor

Governor design. : RQV325...875PA878-11

Ķ

Governer no. : 0 421 815 213

Customer-spec. information

Customer : MACK TRUCKS

Engine : EM 6-300L

1st version kW : 183.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 6.00...8.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 20.9...21.1

100 s: (20.6...21.4)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.6...4.8

Del.quantity cm3/: 4.1...4.7 100 s: (3.9...4.9)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.20...1.40

2nd speed rpm: 450

travel mm : 2.50...2.80

3rd speed rpm : 600

travel mm : 4.10...4.30

4th speed rpm : 875

travel mm : 7.30...7.50

5th speed rpm: 1000

travel mm : 8.70...9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 875 Aneroid pressure h: 1500

Del.quantity : 209.0...211.0

1000 : (206.0...214.0)

Spread cm3 : 5.001000 : (9.00) RATED SPEED 1st version Control Lever position degrees: 55...63 Testing: 1st rack travel in: 10.20 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1000...1030 Speed 4th rack travel in: 1150 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 10...18 Testing: Speed : 275 rpm Minimum rack trave: 6.30 rpm Rack travel in mm : 4.60...4.80 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.20...11.30 2nd speed : 510 rom Rack travel in m: 16.60...16.80 rpm : 700 3rd speed Rack travel in m: 13.30...13.50 4th speed rpm : 600 Rack travel in m: 15.50...15.70 : 450 5th speed rpm Rack travel in m: 0.00...16.60 Aneroid/Altitude Compensator Test 1st version Setting rpm : 510 hPa : 1500 Speed rpm Pressure : 16.60...16.80 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.70...9.10 2nd pressure hPa : 435

Rack travel in m: 10.80...11.00 3rd pressure hPa : 795 Rack travel in m: 14.60...15.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1500 : 510 Speed rpm Del.quantity cm3/: 308.0...314.0 1000 s: (305.0...317.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 1500 Speed rpm : 875 Del.quantity cm3/ : 199.0...201.0 * 1000 s: (167.0...192.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 154.0...158.0 1000 s: (152.0...160.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.20 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm : 11.20 Speed rpm : 805 Rack travel in mm: 4.70 : 300 Speed rpm STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 165.0...205.0 1000 s: (160.0...210.0) Rack travel in mm : 8.70...9.10 LOW IDLE : 325 Speed rpm Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 41.0...47.0 1000 s: (39.0...49.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: : MACK # 313GC5174-P8

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 11.1 e1 : 04.09.90 Test sheet Edition : 02.05.90 Replaces Test oil : ISO-4113

: 0 402 746 864 Combination no.

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

: RQV325...900PA878-12 Governor design.

: 0 421 815 215 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

: EC6-350 4VH Engine

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 16.00...16.10

Del.quantity cm3/: 25.5...25.7

100 s: (25.2...26.0)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm : 4.3...4.5

Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 3.00...3.40 travel mm

rpm : 850 3rd speed

: 5.90...6.10 rpm : 1000 travel mm

4th speed

: 7.40...7.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed Aneroid pressure h: 1200

Aneroid p. Del.quantity 1000

: 255.5...257.5 : (252.5...260.5)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED 1st version Control Lever position degrees: 55...63 Testing: 1st rack travel in: 15.00 rpm : 950...960 Speed 2nd rack travel in: 4.00 rpm : 1115...1145 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm Minimum rack trave: 5.90 rpm Rack travel in mm : 4.30...4.50 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 16.00...16.10 rpm : 625 2nd speed Rack travel in m: 16.50...16.70 rpm : 550 3rd speed Rack travel in m: 0.00...16.40 Aneroid/Altitude Compensator Test 1st version Setting : 625 Speed man hPa : 1200 Pressure : 16.50...16.70 Rack travel mm

Measurement 1/min: 625 Speed 1st pressure hPa : -Rack travel in m: 9.40...9.80 2nd pressure hPa : 265 Rack travel in m: 11.30...11.40 3rd pressure hPa : 665

Rack travel in m: 14.70...15.10

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 : 625 Speed rpm Del.quantity cm3/: 280.0...286.0 1000 s: (277.0...289.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...173.5) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 141.5...145.5 1000 s: (139.5...147.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 15.00 rpm : 950...960 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 13.70 rpm Rack travel in mm: 5.00

Speed rpm

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 135.0...175.0 1000 s: (125.0...185.0) Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.30...4.50 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00Spread ·1000 s: (12.00)

Remarks:

: MACK # 313GC5181P12

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC 11,1 e2 : 04.09.90 Edition : 02.05.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 865

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

: RQV325...875PA878-13 Governor design.

: 0 421 815 216 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: EM6-275L 4VH Engine

: 205.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 19.3...19.5

100 s: (19.1...19.7)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm : 4.7...5.1 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7) Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1.20...1.40 travel mm

2nd speed rpm : 450

travel mm : 2.80...3.10

3rd speed : 850 rpm

travel mm : 6.20...6.40

4th speed : 1000 rpm

: 7.70...7.90 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875

Aneroid pressure h: 1200

Del.quantity : 193.3...(197.5)

: (9.00) 1000

RATED SPEED 1st version Control Lever position degrees: 57...65 Testing: 1st rack travel in: 12.60 Speed rpm : 915...925 2nd rack travel in: 4.00 rpm : 1045...1075 Speed 4th rack travel in: 1150 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed : 275 rpm Minimum rack trave: 6.20 : 325 rpm Rack travel in mm : 4.70...5.10 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 13.60...13.70 nd speed rpm : 510 Rack travel in m: 15.40...15.60 2nd speed rpm : 750 3rd speed Rack travel in m: 13.90...14.20 4th speed rom : 600 Rack travel in m: 15.10...15.30 5th speed rpm : 420 Rack travel in m: 0.00...15.20 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 rpm hPa : 1200 Pressure : 15.40...15.60 Rack travel mm Measurement Speed 1/min: 510 1st pressure hPa : -Rack travel in m: 10.70...11.10 2nd pressure hPa : 265 Rack travel in m: 12.10...12.20

Rack travel in m: 14.20...14.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed rpm : 510
Del.quantity cm3/: 261.0...267.0
1000 s: (259.0...269.0) cm3 : 8.00 1000 s: (12.0) Spread Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...173.5) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 152.0...156.0 1000 s: (150.0...158.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.60 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm : 12.70 : 805 Speed rpm : 300 Speed rom STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 185.0...225.0 1000 s: (175.0...235.0) Rack travel in mm : 10.70...11.10 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.70...5.10 Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0) Spread cm3 : 8.00 1000 s: (12.00) Remarks: : MACK # 313GC5181P8 Delivery-valve spring pre-tension $3.0...3.2 \, \text{mm}$. * This test specification applies only to the engine/nozzle-and-holder

3rd pressure hPa : 450

assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 12,0 a5 : 04.09.90 Edition : 17.5.90 Replaces Test oil : ISO-4113 Combination no. : 0 402 746 866 Injection pump : PES6P120A720RS7157 Pump designation : 0 412 726 814 EP type number Governor : RQV325...875PA909-2K Governor design. : 0 421 815 217 Governer no. Customer-spec. information : MACK TRUCKS Customer : EM7-300L Engine 1st version kW : 224.0 : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening 1 and 1 : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 x Wall thickness : 6.00X2.00X600

Outside diameter x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 875 1st speed Rack travel in mm : 12.60...12.70 Del.quantity cm3/: 21.1...21.3 100 s: (20.9...21.5) Spread cm3 : 0.5100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 1st speed 1.20...1.40 travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm 3rd speed : 650 rpm : 5.60...5.80 travel mm : 900 4th speed rpm travel mm : 8.30...8.50 : 1100 5th speed rpm travel mm : 10.30...10.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 875 Speed Aneroid pressure h: 1200 Del.quantity : 211.0...215.0) : 5.00 Spread cm3

1000

: (9.00)

Test pressure, bar: 17...19

RATED SPEED 1st version Control lever position degrees: 57...55 Testina: 1st rack travel in: 11.60 Speed rpm: 915...925 2nd rack travel in: 4.00 Speed rpm : 1050...1080 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 7...15 Testina: Speed rpm Minimum rack trave: 6.00 Speed rpm Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 875 1st speed Rack travel in m: 12.60...12.70 2nd speed rpm : 510 Rack travel in m: 13.60...13.80 3rd speed rpm : 400 Rack travel in m: 0.00...13.00 Aneroid/Altitude Compensator Test 1st version Settina : 510 Speed rpm hPa : 1200 Pressure : 13.60...13.70 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.10...8.50

2nd pressure hPa : 370 Rack travel in m: 9.50...9.60 3rd pressure hPa : 740 Rack travel in m: 12.30...12.70 START CUT-OUT 1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 Speed : 510 rpm Del.quantity cm3/: 292.5...296.5 1000 s: (289.5...299.5) cm3 : 8.00Spread 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 875 Del.quantity cm3/ : 179.0...181.0 * 1000 s: (153.0...175.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 915...925 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0) Rack travel in mm: 10.40...11.00

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P10

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 11,1 e4 : 04.09.90 Test sheet Edition : 8.6.90 Replaces Test oil : ISO-4113

Combination no. : 0 402 746 867

Injection pump

Pump designation : PES6P120A720RS7164 : 0 412 726 816

EP type number

Governor

: RQV325...900PA848-27 Governor design.

: 0 421 815 218 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

Engine : EC6-350 4VH

1st version kW : 261.0 Rated speed : 1800

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm

: 2.75...2.85 : (2.70...2.90)

Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 16.00...16.10

Del.quantity cm3/: 25.5...25.7

100 s: (25.2...26.0)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.02nd speed

Rack travel in mm : 4.3...4.5 Del.quantity cm3/ : 3.9...4.5 100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.20...1.40 travel mm

2nd speed rpm : 450

: 3.00...3.40 travel mm

rpm : 850 3rd speed

: 5.90...6.10 travel mm

rpm : 1000 4th speed

: 7.40...7.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 1200

Del.quantity : 255.5...260.5)

: 5.00 cm3

Spread 1000 : (9.00) RATED SPEED

1st version Control lever

position degrees: 55...63

Testing:

1st rack travel in: 15.00 rpm : 950...960 Speed 2nd rack travel in: 4.00

rpm : 1095...1125 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 10...18

Testing:

Speed rpm : 275 Minimum rack trave: 5.90 Speed rom

Rack travel in mm : 4.30...4.50

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

1st speed rpm : 900

Rack travel in m: 16.00...16.10

2nd speed rpm : 625

Rack travel in m: 16.50...16.70

rpm : 550 3rd speed

Rack travel in m: 0.00...16.40

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 625 rom hPa : 1200 Pressure

Rack travel mm : 16.50...16.70

Measurement

1/min: 625 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.80

2nd pressure hPa : 265

Rack travel in m: 11.30...11.40

3rd pressure hPa : 665

Rack travel in m: 14.70...15.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 625 Speed rpm

Del.quantity cm3/: 280.0...286.0 1000 s: (277.0...289.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1200

Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (151.0...173.5)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 141.5...145.5 1000 s: (139.5...147.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 15.00

rpm : 950...960 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...175.0 1000 s: (125.0...185.0)

Rack travel in mm : 9.40...9.80

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.30...4.50

Del.quantity cm3/: 39.0...45.0 1000 s: (37.0...47.0)

cm3 : 8.00

Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5181P10

Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

Test sheet : MAC 11,1 e5 : 04.09.90 Edition : 09.03.90 Replaces Test oil : ISO-4113

: 0 402 746 868 Combination no.

Injection pump

Pump designation : PES6P120A720RS7164

: 0 412 726 816 EP type number

Governor

Governor design. : RQV325...875PA848-28

: 0 421 815 219 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

Engine : EM6-275L 4VH

: 205.0 1st version kW : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 Prestroke mm

: (2.70...2.90) Rack travel in mm : 12.00...13.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 19.3...19.5

100 s: (19.1...19.7)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.3...4.5

Del.quantity cm3/: 3.9...4.5

100 s: (3.7...4.7)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.10

rpm : 850 3rd speed

: 6.20...6.40 travel mm

rpm : 1000 4th speed

: 7.70...7.90 travel mm

GUIDE SLEEVE POSITION

Control-Lever position Degree: -1

rpm : 1110 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 875 Aneroid pressure h: 1200 1st pressure hPa : -Rack travel in m: 10.70...11.10 : 193.5...195.5 1000 : (191.5...197.5) Del.quantity 2nd pressure hPa : 265 : 5.00 Rack travel in m: 12.10...12.20 Spread cm31000 : (9.00) 3rd pressure hPa : 450 Rack travel in m: 14.20...14.60 RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 57...65 1st version Aneroid pressure h: 1200 : 510 Testing: rpm Del.quantity cm3/: 261.0...267.0 1000 s: (258.0...270.0) 1st rack travel in: 12.60 rpm : 915...925 Speed cm3 : 8.00 2nd rack travel in: 4.00 Spread Speed rpm : 1045...1075 4th rack travel in: 1150 1000 s: (12.0) Aneroid pressure h: -Speed rpm : 400 Det.quarcity cm3/ : 152.0...156.0 1000 s: (150.0...158.0) rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 10...18 BREAKAWAY Testing: Speed 1st version rpm Minimum rack trave: 5.90 1mm rack travel less than rpm Rack travel in mm : 4.30...4.50 full load rack tr: 12.60 rpm : 915...925 Speed CONSTANT REGULATION rpm : 325...520 STARTING FUEL DELIVERY Speed TORQUE CONTROL Dimension a mm :? Speed : 100 rpm Del.quantity cm3/: 185.0...225.0 1000 s: (175.0...235.0) Torque control curve - 1st version rpm : 875 1st speed Rack travel in mm : 10.70...11.10 Rack travel in m: 13.60...13.70 rpm : 510 2nd speed Rack travel in m: 15.40...15.60 LOW IDLE rpm : 750 3rd speed Speed rpm : 325
Rack travel in mm : 4.70...5.10
Del.quantity cm3/: 39.0...45.0
1000 s: (37.0...47.0) Rack travel in m: 13.90...14.20 th speed rpm : 600 Rack travel in m: 15.10...15.30 th speed rpm : 420 4th speed 5th speed cm3 : 8.00 Rack travel in m: 0.00...15.20 Spread 1000 s: (12.00) Aneroid/Altitude Compensator Test Remarks: : MACK # 313GC5181P6 Delivery-valve spring pre-tension 3.0...3.2 mm. 1st version Setting : 510 Speed rpm * This test specification applies only to the engine/nozzle-and-holder hPa : 1200 Pressure : 15.40...15.60 Rack travel mm assemblies on an injection-pump test bench: setting for test equipment, Measurement 1/min: 510 check value for engine equipment. Speed

B₀2

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 17...19 : 2.75...2.85 : (2.70...2.90) Note remarks Prestroke mm Rack travel in mm: 10.50 : MAC 12,0 a6 Test sheet : 04.09.90 : 1-5-3-6-2-4 Edition Firing order : 02.05.90 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 : 0 402 746 870 Phasing Combination no. Phasing : 0.50 (0.75) Tolerance + - ° Injection pump Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number Time to cyl. no. : 1 Governor : RQV325...875PA878-14 BASIC SETTING Governor design. : 0 421 815 222 rpm: 875 1st speed Governer no. Rack travel in mm : 10.40...10.50 Customer-spec. information : MACK Customer Del.quantity cm3/: 17.4...17.6 : EM7-250L 4VH Engine 100 s: (17.1...17.9) 1st version kW : 187.0 : 1750 cm3 : 0.5Rated speed Spread 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.0Test oil 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 Overflow valve 100 s: (3.8...4.8) : 2 417 413 011 cm3 : 0.8Spread 100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 325 1st speed 1.30...1.60 Opening 1 travel mm pressure, bar : 207...210 2nd speed 500 rpm 3.40...4.00 travel mm : 900 Orifice plate 3rd speed rpm : 6.70...6.90 diameter mm : 0,6 travel mm : 1075 4th speed rpm : 8.40...8.90 travel mm Test lines : 1 680 750 008 FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00x2.00x600 rpm : 875 Speed x Length mm Aneroid pressure h: 900 : 174.0...176.0 Del.quantity (A) Injection pump setting values 1000 : (171.0...179.0) Insp. values in parentheses : 5.00 Set equal delivery quant. cm3 Spread 1000 : (9.00) per values

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 9.40 rpm : 915...925 Speed 2nd rack travel in: 4.00 Speed rpm : 1020...1050 4th rack travel in: 1200 Speed Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 12...20 Testing: Speed : 275 rpm Minimum rack trave: 6.30 : 325 L DW Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 10.40...10.50 2nd speed rpm : 510 Rack travel in m: 11.90...12.10 3rd speed rpm : 450 Rack travel in m: 0.00...11.80 Aneroid/Altitude Compensator Test 1st version Setting Speed : 510 man hPa : 900 Pressure Rack travel mm : 11.90...12.10 Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 7.80...8.20 2nd pressure hPa : 235
Rack travel in m: 8.80...8.90 3rd pressure hPa : 485 Rack travel in m: 10.80...11.20 START CUT-OUT

1/min: 275 (285)

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 Speed rpm Del.quantity cm3/: 244.0...250.0 1000 s: (241.0...253.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 900 Speed rpm : 850
Del.quantity cm3/ : 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 151.0...155.0 1000 s: (149.0...157.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 9.80 Speed rpm STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 170.0...210.0 1000 s: (160.0...220.0) Rack travel in mm : 10.10...10.30 LOW IDLE Speed rpm: 325 Rack travel in mm: 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

Spread

cm3 : 8.00 1000 s: (12.00)

Remarks:

: MACK # 313GC5179-P28

This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Delivery—valve spring pre—tension 3.0...3.2 mm.

Speed

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 2.75...2.85 : (2.70...2.90) Note remarks Rack travel in mm : 10.50 : 1-5-3-6-2-4 Test sheet : MAC 12,0 c Firing order : 04.09.90 Edition : 02.05.90 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 402 746 871 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6P120A720RS7157 Time to cyl. no. : 1 : 0 412 726 814 EP type number BASIC SETTING Governor Governor design. : RQV325...900PA929K Governer no. : 0 421 815 223 rpm: 900 1st speed Rack travel in mm : 15.80...15.90 Customer—spec. information Customer : MACK TRUCKS Del.guantity cm3/: 27.5...27.7 Engine : E7-400 100 s: (27.2...28.0) : 298.0 1st version kW cm3 : 0.5Rated speed : 1800 Spread 100 s: (0.9) TEST BENCH REQUIREMENTS rpm : 325.02nd speed Test oil Rack travel in mm : 5.1...5.3 : 38...42 inlet temp. °C Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) Overflow valve : 2 417 413 011 cm3 : 0.8Spread 100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly 1st speed rpm : 325 1.20...1.40 Openina (1997) travel mm rpm : 450 : 207...210 pressure, bar 2nd speed : 2.80...3.20 travel mm rpm : 650 Orifice plate 3rd speed : 5.60...5.80 diameter mm : 0,6 travel mm rpm : 900 4th speed : 8.30...8.50 travel mm Test lines : 1 680 750 008 5th speed : 1100 rpm : 10.30...10.80 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00X2.00X600 1st version rpm : 900 (A) Injection pump setting values Speed Insp. values in parentheses Aneroid pressure h: 1200 Del.quantity : 2(3.0...280.0) Set equal delivery quant. per values

: 5.00

: (9.00)

cm3

1000

Spread

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

RATED SPEED 1st version Control lever position degrees: 58...56 Testing: 1st rack travel in: 14.80 rpm : 940...950 Speed 2nd rack travel in: 4.00 rpm : 1105...1135 Speed 4th rack travel in: 1200 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 7...15 Testina: Speed rpm Minimum rack trave: 6.30 Speed rpm : 325 Rack travel in mm : 5.10...5.30 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm rpm : 900 1st speed Rack travel in m: 15.80...15.90 rpm : 625 2nd speed Rack travel in m: 15.20...15.40 rpm : 700 3rd speed Rack travel in m: 15.40...15.60 4th speed rpm : 500 Rack travel in m: 0.00...13.50 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 900 Pressure hPa : 1200 : 15.80...15.90 Rack travel mm Measurement 1/min: 900 Speed 1st pressure hPa : -Rack travel in m: 8.50...8.90

Torque control curve - 1st version 2nd pressure hPa : 325 Rack travel in m: 10.20...10.30 3rd pressure hPa : 790 Rack travel in m: 13.80...14.20 START CUT-OUT

1/min: 275 (285) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 625 rpm Del.guantity cm3/: 302.5...308.5 1000 s: (299.5...311.5) cm3Spread : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 Speed rpm Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: -: 400 Speed rpm Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 14.80 rpm : 940...950 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 14.70 rpm Speed STARTING FUEL DELIVERY Speed rpm : 100
Del.quantity cm3/: 180.0...220.0
1000 s: (170.0...230.0) : 100 Rack travel in mm : 10.80...11.40 LOW IDLE

Speed rpm : 325 Rack travel in mm : 5.10...5.30 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P8

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MAC 12,0 c1 : 04.09.90 Edition : 02.05.90 Replaces : ISO-4113 Test oil : 0 402 746 872 Combination no. Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Governor : RQV325...900PA929-1K Governor design. : 0 421 815 224 Governer no. Customer-spec. information : MACK TRUCKS Customer : E7-350 Engine : 261.0 1st version kW : 1800 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Insp. values in parentheses

: (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 900 Rack travel in mm : 13.60...13.70 Del.quantity cm3/: 23.1...23.3 100 s: (22.9...23.5) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8 Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 325 1st speed : 1.20...1.40 travel mm rpm : 450 2nd speed 2.80...3.20 travel mm : 650 3rd speed rpm : 5.60...5.80 travel mm : 900 4th speed rpm : 8.30...8.50 travel mm : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 900 Aneroid pressure h: 1200 : 231.5...233.5 Del.quantity 1000 : (229.5...235.5) : 5.00 Spread cm3 1000 : (9.00)

Prestroke mm

: 2.75...2.85

B10

RATED SPEED

1st version Control Lever

position degrees: 58...66

Testing:

1st rack travel in: 12.60 rpm : 940...950 2nd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1200

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 7...15

Testing:

Speed rpm Minimum rack trave: 5.90 Speed rpm : 325

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

: 900 1st speed rpm

Rack travel in m: 13.60...13.70

: 625 2nd speed rpm

Rack travel in m: 13.30...13.50

rpm : 500 3rd speed

Rack travel in m: 0.00...12.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 900 rpm hPa : 1200 Pressure

: 13.60...13.70 Rack travel mm

Measurement

Speed 1/min: 900

1st pressure hPa : -

Rack travel in m: 8.00...8.40

2nd pressure hPa : 325 Rack travel in m: 9.40...9.50

3rd pressure hPa : 685

Rack travel in m: 12.10...12.50

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 625 Del.quantity cm3/ : 263.0...269.0 1000 s: (260.0...272.0)

cm3 : 8.00 Spread

1000 s: (12.0)

Aneroid pressure h: 1200

: 850 Speed rom

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 153.0...157.0 1000 s: (151.0...159.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 940...950 Speed

INTERMEDIATE RATED SPEED

Rack travel in mm: 12.70

Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 170.0...210.0

1000 s: (160.0...220.0)

Rack travel in mm : 10.30...10.90

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P4

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test

bench: setting for test equipment, check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

: MAC 12,0 c2 Test sheet : 04.09.90 Edition : 02.05.90 Replaces Test oil : ISO-4113

: 0 402 746 873 Combination no.

Injection pump

Pump designation : PES6P120A720RS7157 : 0 412 726 814 EP type number

Governor

Governor design: : RQV325...875PA929-2K

: 0 421 815 225 Governer no.

Customer-spec. information

Customer : MACK TRUCKS

Engine : EM7-300L

1st version kW : 224.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm: 12.60...12.70

Del.guantity cm3/: 21.1...21.3

100 s: (20.9...21.5)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 325 : 1.20...1.40 1st speed travel mm

rpm : 450 2nd speed

travel mm : 2.80...3.20

rpm : 650 3rd speed

: 5.60...5.80 travel mm

rpm : 900 4th speed

: 8.30...8.50 travel mm

1100 5th speed rpm

: 10.30...10.80 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Spread

Speed rpm : 875

Aneroid pressure h: 1200

: 211.0...213.0 : (209.5...215.0) Del.quantity

1000

: 5.00 cm3

1000 : (9.00)

RATED SPEED 1st version Control lever position degrees: 57...55 Testing: 1st rack travel in: 11.60 Speed rpm : 915...925 2nd rack travel in: 4.00 rpm : 1050...1080 Speed 4th rack travel in: 1200 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rom Minimum rack trave: 6.00 rpm : 325 Speed Rack travel in mm : 4.80...5.00 CONSTANT REGULATION rpm : 325...520 Speed TORQUE CONTROL Dimension a mm : ? Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 12.60...12.70 2nd speed rpm : 510 Rack travel in m: 13.60...13.80 3rd speed rpm : 400 Rack travel in m: 0.00...13.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 510 hPa : 1200 Pressure Rack travel mm : 13.60...13.80 Measurement 1/min: 510 Speed

1st pressure hPa : -Rack travel in m: 8.10...8.50 2nd pressure hPa : 370 Rack travel in m: 9.50...9.60 3rd pressure hPa : 740 Rack travel in m: 12.30...12.70 START CUT-OUT 1/min: 275 (285) Speed **B14**

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1200 : 510 Speed rpm

Del.quantity cm3/: 292.5...296.5 1000 s: (189.5...199.5)

cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: 1200 rpm : 850 Speed

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/: 157.5...161.5 1000 s: (155.5...163.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 915...925 Speed

INTERMEDIATE RATED SPEED Rack travel in mm: 11.90 Speed rpm : 805

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0) Rack travel in mm : 10.40...11.00

LOW IDLE

: 325 Speed rpm

Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00 Spread 1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P12

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension: Sliding-sleeve position = 37.0 mm

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12.0 a7 : 04.09.90 : 02.05.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 746 874 Injection pump Pump designation : PES6P12DA72ORS7157 : 0 412 726 814 EP type number Governor Governor design.: RQV325...850PA909-3K Governer no. : 0 421 815 230 Customer-spec. information Customer : MACK TRUCKS : E7-300 Engine : 220.0 1st version kW Rated speed : 1700 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder assembly : 1 688 901 101 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Insp. values in parentheses

: (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 850 Rack travel in mm : 12.20...12.30 Del.guantity cm3/: 20.4...20.6 100 s: (20.2...20.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.0 2nd speed Rack travel in mm : 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 1.20...1.40 travel mm rpm : 450 2nd speed : 2.80...3.20 travel mm 3rd speed rpm : 650 : 5.60...5.80 travel mm : 900 4th speed rpm : 8.30...8.50 travel mm : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 850 Speed Aneroid pressure h: 1200 Del.quantity : 204.0...208.0) cm3 : 5.00 Spread 1000 : (9.00)

Prestroke mm

: 2.75...2.85

RATED SPEED

1st version Control Lever

position degrees: 51...59

Testing:

1st rack travel in: 11.20 rpm : 890...900 Speed 2nd rack travel in: 4.00

rpm : 1030...1060 Speed

4th rack travel in: 1150

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 5...13

Testing:

Speed rpm Minimum rack trave: 6.10 Speed rpm : 325

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 12.20...12.30

2nd speed

nd speed rpm : 600 Rack travel in m: 12.40...12.60

rpm : 500 3rd speed

Rack travel in m: 0.00...11.10

Aneroid/Altitude Compensator Test

1st version

Setting

: 600 Speed rpm Pressure hPa : 1200

Rack travel mm : 12.40...12.60

Measurement

Speed 1/min: 600

1st pressure hPa : -

Rack travel in m: 7.70...8.10

2nd pressure hPa : 265

Rack travel in m: 9.00...9.10

3rd pressure hPa : 565

Rack travel in m: 11.20...11.60

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 241.0...247.0 1000 s: (239.0...249.0)

: 8.00 Spread cm3 1000 s: (12.0)

Aneroid pressure h: 1200 : 850 Speed rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

Speed rpm : 400 Del.quantity cm3/ : 148.0...152.0 1000 s: (146.0...154.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20

rpm : 890...900 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

: 8.00 Spread cm3

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P14

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test

bench: setting for test equipment,

check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MAC 12,0 a8 Test sheet : 04.09.90 Edition : 2.5.90 Replaces : ISO-4113 Test oil

: 0 402 746 875 Combination no.

Injection pump

Pump designation : PES6P120A720RS7157

: 0 412 726 814 EP type number

Governor

: RQV325...975PA909-4K Governor design.

: 0 421 815 231 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E7-300A Engine

: 224.0 1st version kW : 1950 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 975 1st speed

Rack travel in mm : 12.30...12.40

Del.guantity cm3/: 20.1...20.3

100 s: (19.9...20.5)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 325.0 2nd speed

Rack travel in mm: 4.7...4.9

Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

cm3 : 0.8

Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 275 1st speed

: 0.50...1.00 travel mm

2nd speed : 325 rpm

1.50...1.70 travel mm

3rd speed : 450 rpm

: 2.90...3.30 travel mm

rpm : 1000 4th speed

: 8.40...8.60 travel mm

: 1200 5th speed rom

: 10.20...10.60 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 975 Speed

Aneroid pressure h: 1200

Del.quantity : 201.0...205.0)

: 5.00 cm3

Spread 1000 : (9.00)

RATED SPEED

1st version Control Lever

position degrees: 54...62

Testing:

1st rack travel in: 11.30 Speed rpm : 1015...1025 2nd rack travel in: 4.00

rpm : 1145...1175 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever position degrees: 8...16

Testing:

Speed rpm Minimum rack trave: 6.10 rpm : 325 Speed

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 12.30...12.40

2nd speed rpm : 600

Rack travel in m: 11.70...11.90

3rd speed rpm : 500

Rack travel in m: 0.00...11.50

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 975 rpm Pressure hPa : 1200

: 12.30...12.40 Rack travel mm

Measurement

1/min: 975 Speed

1st pressure hPa : -

Rack travel in m: 7.70...8.10

2nd pressure hPa : 235

Rack travel in m: 9.00...9.10

3rd pressure hPa : 460

Rack travel in m: 10.80...11.20

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

Speed rpm : 600 Del.quantity cm3/: 221.0...227.0 1000 s: (219.0...229.0)

Spread cm3 : 8.00

1000 s: (12.0) Aneroid pressure h: 1200

Speed : 850 rpm

Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0)

Aneroid pressure h: -

rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.30

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

Speed rpm : 325

Rack travel in mm : 4.70...4.90

Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

Spread cm3 : 8.00

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P18

* This test specification applies only to the engine/nozzle-and-holder

assemblies on an injection pump test bench: setting for test equipment,

check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mmSetting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

B19

Note remarks

: MB 11.8 s : 20.07.90 Test sheet Edition : 6.7.90 Replaces : ISO-4113 Test oil

Combination no. : 0 402 746 884

Injection pump

Pump designation : PES6P120A720LS7196

: 0 412 726 831 EP type number

Governor

: RQV450..1050PA886-1 Governor design.

Governer no. : 0 421 813 835

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 h LA Engine

: 304.0 : 2100 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

x Length mm : 6.00x1.50x1000

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 Prestroke mm

: (4.95...5.15)

Rack travel in mm : 19.00...21.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 6

BASIC SETTING

rpm: 600 1st speed

Rack travel in mm : 15.20...15.40

Del.quantity cm3/: 28.4...28.6

100 s: (28.1...28.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 450.0 2nd speed

Rack travel in mm: 4.0...4.6 Del.quantity cm3/: 1.0...1.6 100 s: (0.7...1.9)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 400 1st speed

: 1.40...1.70 travel mm

rpm : 700 2nd speed

: 4.00...4.40 travel mm

rpm : 1100 3rd speed

: 7.60...8.10 travel mm

rpm : 1200 4th speed

: 9.50...10.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1150 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 600 Speed

Aneroid pressure h: 950 : 284.0...286.0 Del.quantity 1000 : (281.0...289.0) cm3 : 5.00 Spread 1000 : (9.00) RATED SPEED Speed 1st version Control lever position degrees: 115...123 Testing: 1st rack travel in: 14.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1180...1210 Speed Spread 4th rack travel in: 1300 rpm : 0.00...1.00Speed Speed LOW IDLE 1 Control lever position degrees: 60...68 Spread Testing: Speed rom Speed Minimum rack trave: 5.90 rpm : 450 Speed Rack travel in mm : 4.00...4.60 Spread CONSTANT REGULATION rpm : 450...650 Speed TORQUE CONTROL Dimension a mm : 0.60 : 1050 2nd speed rpm Rack travel in m: 15.40...15.60 3rd speed rpm : 900 Rack travel in m: 15.70...15.90 Speed 4th speed rpm : 800 Rack travel in m: 16.00...16.20 Aneroid/Altitude Compensator Test Speed 1st version Setting Speed rpm : 600 Pressure hPa : 950 : 15.20...15.40 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 11.80...12.00 2nd pressure hPa : 600 Rack travel in m: 13.70...13.90 3rd pressure hPa : 1200

Rack travel in m: 15.50...15.70 4th pressure hPa : -Rack travel in m: 9.80...10.20 START CUT-OUT 1/min: 370 (390) FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1600 Speed rpm : 1050 Del.quantity cm3/: 280.0...283.0 1000 s: (277.0...286.0) cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1600 : 800 וווכיו Del.quantity cm3/: 298.0...302.0 1000 s: (295.0...305.0) cm3 : 8.001000 s: (12.0) Aneroid pressure h: rpm : 500 Del.quantity cm3/: 145.0...147.0 1000 s: (142.0...150.0) cm3 : 8.00 1000 s: (12.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 14.40 rpm : 1090...1100 STARTING FUEL DELIVERY : 100 rpm Del.quantity cm3/: 280.0...300.0 1000 s: (276.0...304.0) Remarks: :

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.75...2.85 : (2.70...2.90) Prestroke mm Note remarks Rack travel in mm: 10.50 : MAC 12,0 e : 04.09.90 : 17.5.90 : 1-5- 3- 6- 2- 4 Test sheet Firing order Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Phasing Combination no. : 0 402 746 885 Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6P120A720RS7157 Time to cyl. no. : 1 EP type number : 0 412 726 814 Governor BASIC SETTING Governor design. : RQV325...875PA944-3K Governer no. : 0 421 815 238 1st speed rpm: 875 Customer-spec. information Rack travel in mm : 11.40...11.50 : MACK TRUCKS Customer Del.quantity cm3/: 19.2...19.4 Engine : EM7-275 100 s: (19.0...19.6) 1st version : 205.0 kW Rated speed : 1750 cm3 : 0.5Spread TEST BENCH REQUIREMENTS 100 s: (0.9) Test oil rpm : 325.0 2nd speed inlet temp. °C : 38...42 Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 Overflow valve 100 s: (3.8...4.8) : 2 417 413 011 cm3 : 0.8Spread 100 s: (1.2) Overflow quantity min. 1/h: 160...170 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL 1st speed rpm : 325 1.20...1.40 Opening travel mm rpm : 450 pressure, bar : 207...210 2nd speed travel mm : 2.80...3.20 Orifice plate 3rd speed rpm : 650 diameter mm : 0,6 travel mm : 5.60...5.80 rpm : 900 4th speed : 8.30...8.50 travel mm Test lines : 1100 : 1 680 750 008 5th speed rom : 10.30...10.80 travel mm Outside diameter x Wall thickness FULL LOAD DELIV. AT FULL LOAD STOP x Length mm : 6.00x2.00x600 1st version (A) Injection pump setting values Speed rpm : 875 Aneroid pressure h: 1200 Insp. values in parentheses Aneroiu D. Del.quantity 1000 Set equal delivery quant. : 192.0...194.0 : (190.0...196.0)

: 5.00

: (9.00)

cm3

1000

Spread

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

RATED SPEED 1st version Control lever position degrees: 54...62 Testing: 1st rack travel in: 10.40 : 915...925 rpm 2nd rack travel in: 4.00 : 1025...1055 Speed rpm 4th rack travel in: 1150 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 7...15 Testing: Speed rpm Minimum rack trave: 5.90 : 325 rpm Rack travel in mm : 4.70...4.90 CONSTANT REGULATION Speed rpm : 325...520 TORQUE CONTROL Dimension a mm Torque control curve - 1st version 1st speed rpm : 875 Rack travel in m: 11.40...11.50 : 510 2nd speed rpm Rack travel in m: 12.80...13.00 3rd speed rom : 600 Rack travel in m: 12.40...12.80 4th speed rpm : 450 Rack travel in m: 0.00...12.50 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm hPa : 1200 Pressure : 12.80...13.00 Rack travel mm Measurement 1/min: 510 Speed 1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 355 Rack travel in m: 9.40...9.50

1/min: 275 (285) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 Speed : 510 rpm Del.quantity cm3/: 268.0...274.0 1000 s: (266.0...276.0) : 8.00 Spread cm3 1000 s: (12.0) Aneroid pressure h: 1200 Speed : 850 rpm Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 157.5...161.5 700 s: (155.5...163.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 915...925 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0) Rack travel in mm : 10.40...11.00 LOW IDLE : 325 Speed man Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) cm3 : 8.00Spread 1000 s: (12.00) Remarks: : MACK # 313GC5185-P22

* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Start-of-delivery mark = 13,5° after start of delivery cyl. 1.

Setting and blocking of pointer of

B23

3rd pressure hPa : 630

Rack travel in m: 11.50...11.90

start-of-delivery sensor on cyl. 1 start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12,0 e1 Test sheet : 04.09.90 **Edition** : 2.5.90 Replaces Test oil : ISO-4113 : 0 402 746 886 Combination no. Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Governor Governor design. : RQV325...975PA944-4K : 0 421 815 239 Governer no. Customer-spec. information : MACK TRUCKS Customer : F7-250A Engine : 186.0 1st version kW : 1950 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder : 1 688 901 101 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasina : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 975 Rack travel in mm : 10.40...10.50 Del.guantity cm3/: 16.4...16.6 100 s: (16.2...16.8) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 275 : 0.50...1.00 travel mm rpm : 325 2nd speed : 1.50...1.70 travel mm : 450 3rd speed rpm : 2.90...3.30 travel mm rpm : 1000 4th speed : 8.40...8.60 travel mm : 1200 5th speed rpm : 10.20...10.60 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 975 Speed Aneroid pressure h: 1200 : 164.5...166.5 Del.quantity 1000 : (162.5...168.5)

: 5.00

: (9.00)

cm3

1000

Spread

BEGINNING OF DELIVERY Test pressure, bar: 17...19

per values

(A) Injection pump setting values

Set equal delivery quant.

Insp. values in parentheses

: 6.00X2.00X600

x Length mm

RATED SPEED

1st version Control lever

position degrees: 54...62

Testing:

1st rack travel in: 9.40

Speed rpm: 1015...1025 2nd rack travel in: 4.00

rpm : 1120...1150 Speed

4th rack travel in: 1250

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Testing:

Speed : 275 rpm Minimum rack trave: 6.10

: 325 rpm

Rack travel in mm : 4.70...4.90

CONSTANT REGULATION

rpm : 325...520 Speed

TORQUE CONTROL

Dimension a mm

Torque control curve - 1st version

1st speed rpm : 975

Rack travel in m: 10.40...10.50

2nd speed rpm : 600

Rack travel in m: 10.80...11.00

3rd speed rpm : 500

Rack travel in m: 0.00...10.20

Aneroid/Altitude

Compensator Test

1st version

Setting

: 600 Speed rpm hPa : 1200 Pressure

: 10.80...11.00 Rack travel mm

Measurement

1/min: 600 Speed

1st pressure hPa : -

Rack travel in m: 7.50...7.90

2nd pressure hPa : 195

Rack travel in m: 8.40...8.50

3rd pressure hPa : 375

Rack travel in m: 9.90...10.30

START CUT-OUT

1/min: 275 (285) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200

rpm : 600 Speed

Del.quantity cm3/: 198.5...204.5 1000 s: (196.5...206.5) Spread cm3 : 8.00 1000 s: (12.0)

Aneroid pressure h: rpm : 400 Speed

Del.quantity cm3/: 146.0...150.0 1000 s: (144.0...152.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.40

rpm : 1015...1025 Speed

STARTING FUEL DELIVERY

rom : 100

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 10.00...10.60

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0)

cm3 : 8.00Spread

1000 s: (12.00)

Remarks:

: MACK # 313GC5185-P26

* This test specification applies only to the engine/nozzle-and-holder

assemblies on an injection-pump test bench: setting for test equipment,

check value for engine equipment.

Bow dimension:

Sliding-sleeve position = 37.0 mm Setting and blocking of pointer of

start-of-delivery sensor on cyl. 1

start of delivery

Note remarks

: MAC 11,1 e9 Test sheet : 04.09.90 Edition Replaces : 2.5.90 : ISO-4113 Test oil

Combination no. : 0 402 746 888

Injection pump

Pump designation : PES6P120A720RS7164

EP type number : 0 412 726 816

Governor

: RQV325...875PA878-15 Governor design.

: 0 421 815 235 Governer no.

Customer-spec, information

Customer : MACK TRUCKS

: EMC6 300L 4VH Engine

: 200.0 1st version kW Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

Prestroke mm : 2.75...2.85 : (2.70...2.90) Rack travel in mm : 12.00...13.00 Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 875 1st speed

Rack travel in mm : 14.90...15.00

Del.quantity cm3/: 22.5...22.7

100 s: (22.3...22.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 325.0Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 3.9...4.5 100 s: (3.7...4.7)

Spread cm3 : 0.8100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.20...1.40 travel mm

rpm : 450 2nd speed

: 3.00...3.40 travel mm

: 850 3rd speed man

: 5.90...6.10 : 1000 travel mm

4th speed rpm

: 7.40...7.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 875 Speed Aneroid pressure h: 1200

: 225.0...227.0 Del.quantity

1000 : (223.0...229.0)

: 5.00 cm3 Spread

1000 : (9.00)

RATED SPEED 1st version Control Lever position degrees: 54...62 Testing: 1st rack travel in: 13.90 rpm : 915...925 Speed 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1160 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Testing: Speed rpm : 275 Minimum rack trave: 5.90 rom Rack travel in mm : 4.70...4.90 CONSTANT REGULATION rom : 325...520 Speed TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 875 1st speed Rack travel in m: 14.90...15.00 : 510 2nd speed rpm Rack travel in m: 16.80...17.00 3rd speed rpm : 700 Rack travel in m: 15.60...15.80 4th speed rpm : 600 Rack travel in m: 16.40...16.60 : 420 5th speed rpm Rack travel in m: 0.00...16.80 Aneroid/Altitude Compensator Test 1st version Setting : 510 Speed rpm hPa : 1200 Pressure Rack travel mm : 16.80...17.00 Measurement Speed 1/min: 510 1st pressure hPa : -

Rack travel in m: 10.90...11.30

Rack travel in m: 12.70...12.80

2nd pressure hPa : 375

3rd pressure hPa : 735

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 510 rpm Del.quantity cm3/: 305.0...311.0 1000 s: (302.0...314.0) Spread cm3 : 8.001000 s: (12.0) Aneroid pressure h: 1200 Speed rpm : 875 Del.quantity cm3/: 179.0...181.0 * 1000 s: (151.0...175.0) Aneroid pressure h: rpm : 400 Speed Del.quantity cm3/: 156.0...160.0 1000 s: (154.0...162.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.90 rpm : 915...925 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 11.20 rpm : 805 Speed Rack travel in mm: 4.80 : 300 Speed rpm STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 160.0...200.0 1000 s: (150.0...210.0) Rack travel in mm : 10.90...11.30 LOW IDLE Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 39.0...45.0 1000 s: (37.6...47.0) cm3 : 8.00 Spread 1000 s: (12.00) Remarks: : MACK # 313GC5181P16 Delivery-valve spring pre-tension 3.0...3.2 mm.

* This test specification applies only

Rack travel in m: 15.70...16.10

to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery

Note remarks

Test sheet : FOR 7,8 k : 10.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 746 889

Injection pump

Pump designation : PES6P120A720RS7179

: 0 412 726 826 EP type number

Governor

Governor design. : RQV350..1000PA917-1K

: 0 421 815 236 Governer no.

Customer-spec. information

Customer : FNH

Engine : 7.8L

1st version kW : 160.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 072

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 17...19

: 4.35...4.45 : (4.30...4.50) Prestroke mm

Rack travel in mm : 9.00...<u>1</u>2.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - *

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.50...12.60

Del.guantity cm3/: 15.9...16.1

100 s: (15.6...16.4)

cm3 : 0.7Spread

100 s: (1.1)

rpm : 350.02nd speed

Rack travel in mm : 5.0...5.4 Del.quantity cm3/: 2.0...2.6

100 s: (1.8...2.8)

cm3 : 0.5Spread

100 s: (0.9)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1055 1st speed

9.20...9.40 travel mm

2nd speed

rpm : 350 : 2.20...2.40 travel mm

: 500 3rd speed rpm

travel mm : 4.10...4.70

: 750 4th speed rpm

travel mm : 6.60...7.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

rpm : 1230 Speed

Rack travel in mm : 6.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Aneroid pressure h: 1400

Del.quantity : 159.0...161.0 1000 : (156.0...164.0) : 7.00 Spread cm3 1000 : (11.00) RATED SPEED 1st version Control lever position degrees: 116...124 Testina: 1st rack travel in: 11.50 rpm : 1050...1060 Speed 2nd rack travel in: 4.00 Speed rpm : 1165...1195 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 69...77 Testina: Speed rpm : 100 Minimum rack trave: 6.70 rpm Rack travel in mm : 5.00...5.40

CONSTANT REGULATION

rpm : 320...440 Speed

TORQUE CONTROL Dimension a mm :? Torque control curve - 1st version rpm : 1000 1st speed Rack travel in m: 12.50...12.60 rpm : 750 2nd speed Rack travel in m: 13.10...13.30 3rd speed rpm : 650 Rack travel in m: 12.50...12.90

Aneroid/Altitude Compensator Test

1st version Settina : 750 Speed rpm hPa : 1400 Pressure Rack travel mm : 13.10...13.30

Measurement 1/min: 750 Speed

1st pressure hPa : -Rack travel in m: 8.00...8.40 2nd pressure hPa : 310 Rack travel in m: 9.60...9.70 3rd pressure hPa : 620

Rack travel in m: 11.80...12.20

START CUT-OUT

1/min : 290 (310) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1400 : 750 Speed rpm

Del.quantity cm3/: 187.0...193.0 1000 s: (184.0...196.0)

cm3 : 8.00Spread 1000 s: (12.0)

Aneroid pressure h:

Speed rpm : 500 Del.quantity cm3/ : 101.0...103.0 1000 s: (98.0...106.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50

rpm : 1050...1060 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 145.0...165.0 1000 s: (140.0...170.0)

Rack travel in mm : 10.70...11.30

Remarks:

: FNH # E9HN-9A543-PA

Bow dimension:

Sliding-sleeve position = 37.0 mm

03

Note remarks

: MAC 12.0 h : 08.08.90 Test sheet Edition : 9.7.90 Replaces : ISO-4113 Test oil

Combination no. : 0 402 746 890

Injection pump

Pump designation : PES6P120A720RS7200

: 0 412 726 833 EP type number

Governor

Governor design. : RQV325...875PA944-5K

: 0 421 815 240 Governer no.

Customer—spec. information

: MACK TRUCKS Customer

Engine : EM7-275

1st version kW : 202.0 : 1750 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35 (3.20...3.40)

Rack travel in mm : 11.00...13.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50 & maximum rack tra: 12.00

Difference * CS : 2.50...3.00

BASIC SETTING

1st speed **rpm: 875**

Rack travel in mm : 13.20...13.30

Del.guantity cm3/: 23.5...23.7

100 s: (23.3...23.9)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0 Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

: 1.40...1.60 travel mm

2nd speed : 450 rpm

3.30...3.70 travel mm : 700

3rd speed rpm

7.90...8.30 travel mm

900 4th speed rpm

: 9.40...9.60 travel mm

: 1050 5th speed rpm

: 10.60...11.00 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

FULL LOAD DELIV. AT FULL LOAD STOP $1/\min : 510$ Speed 1st version 1st pressure hPa : -Rack travel in m: 8.60...9.00 rpm : 875 Speed 2nd pressure hPa : 310
Rack travel in m: 10.10...10.20
3rd pressure hPa : 635 Aneroid pressure h: 1200 Del.quantity : 235.5...237.5 1000 : (233.5...239.5) cm3 : 5.00 Rack travel in m: 12.50...12.90 Spread 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 250 (255) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 60...68 1st version Testing: 1st rack travel in: 12.20 Aneroid pressure h: 1200 rpm : 915...925 : 510 Speed Speed rpm Del.quantity cm3/: 310.0...314.0 1000 s: (307.0...317.0) 2nd rack travel in: 4.00 : 1055...1085 Speed rom 4th rack travel in: 1200 cm3 : 8.00 Spread 1000 s: (12.0) rpm : 0.00...1.00 Speed Aneroid pressure h: -LOW IDLE 1 Speed rpm Del.quantity cm3/: 155.5...159.5 Control lever 1000 s: (153.5...161.5) position degrees: 8...16 Testing: Speed : 275 BREAKAWAY rpm Minimum rack trave: 6.00 1st version Speed rpm -: 325 Rack travel in mm : 4.80...5.00 1mm rack travel less than full load rack tr: 12.20 CONSTANT REGULATION rpm : 325...520 rpm : 915...925 Speed Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm :? Torque control curve - 1st version 1st speed rpm : 875 Speed : 100 Speed rpm : 100 Del.quantity cm3/: 190.0...230.0 Rack travel in m: 13.20...13.30 2nd speed rpm : 510 1000 s: (180.0...240.0) Rack travel in mm : 19.00...21.00 Rack travel in m: 13.80...14.00 3rd speed rpm : 600 Rack travel in m: 13.80...14.00 LOW IDLE 4th speed rpm : 450 Rack travel in m: 13.10...13.50 Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 Aneroid/Altitude 1000 s: (38.0...48.0) Compensator Test Spread cm3 : 8.00 1000 s: (12.00) 1st version Setting Remarks: : 510 : MACK # 313GC5188-P4 Speed rpm Pressure hPa : 1200 : 13.80...14.00 Setting and blocking of pointer of Rack travel mm start-of-delivery sensor on cyl. 1 Measurement start of delivery

CO5

Bow dimension: Sliding-sleeve position = 37.0 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : RVI 9,8 k : 06.07.90 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 402 746 893 Injection pump Pump designation : PES6P120A320RS7201 : 0 412 726 834 EP type number Governor Governor design. : RQV275...1000PA948 : 0 421 813 852 Governer no. Customer-spec. information Customer : RVI : MIDR 062045Q Engine

: 176.5 1st version kW Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test lines : 1 680 750 075

Outside diameter x Wall thickness

: 8.00X2.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 25...27

: 4.80...4.90 Prestroke mm : (4.75...4.95) Rack travel in mm : 12.50...13.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 12.50...13.50 & maximum rack tra: 20.0...21.0 Difference ° CS : 2.25...3.75

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 13.90...14.00

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 275.0 2nd speed Rack travel in mm: 5.4...5.8 Del.quantity cm3/: 3.1...3.7 100 s: (2.8...4.0) cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1000 1st speed travel mm : 7.60...7.80 2nd speed rpm : 275

: 1.10...1.80 travel mm

3rd speed 500 rpm

: 3.70...4.10 travel mm : 770 4th speed rpm

: 5.90...6.30 travel mm

rpm : 1400 5th speed

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION Control-lever position

Dearee: -1 rpm : 1060

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed Aneroid pressure h: 900

: 233.0...235.0 Del.quantity

1000 : (230.0...238.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version Control lever

position degrees: 296...304

Testing:

1st rack travel in: 12.90

rpm : 1065...1075 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 244...252

Testina:

Speed rom Minimum rack trave: 6.90 rpm : 275 Speed

Rack travel in mm : 5.50...5.70

CONSTANT REGULATION

Speed rpm : 310...420

Aneroid/Altitude Compensator Test

1st version Setting

: 500 Speed rom hPa : 900 Pressure

Rack travel mm : 13.90...14.00

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.80...11.20

2nd pressure hPa : 560

Rack travel in m: 13.10...13.30 3rd pressure hPa : 240 Rack travel in m: 11.50...11.90

START CUT-OUT

1/min: 225 (245) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 500 Del.quantity cm3/ : 237.0...241.0

1000 s: (234.0...244.0)

: 500 Speed rpm Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 135.0...137.0 1000 s: (132.0...140.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.90

: 1065...1075 Speed rpm

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...180.0

1000 s: (146,0...184.0)

LOW IDLE

Speed rpm: 275
Rack travel in mm: 5.40...5.80
Del.quantity cm3/: 31.0...37.0

1000 s: (28.0...40.0)

cm3 : 8.00 Spread

1000 s: (12.00)

Remarks:

Setting and blocking of pointer of start-of-delivery sensor on cyl. 1

start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAC 12.0 i : 17.05.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 402 746 895 Injection pump Pump designation : PES6P120A720RS7157 EP type number : 0 412 726 814 Governor Governor design. : RQV325...875PA961K Governer no. : 0 421 815 245 Customer-spec. information : MACK TRUCKS Customer : EM7-275 Engine : 205.0 1st version kW : 1750 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 011 Overflow quantity min. 1/h: 160...170 Test nozzle holder assembly : 1 688 901 101 **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test Lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values

Test pressure, bar: 17...19

BEGINNING OF DELIVERY

Insp. values in parentheses

: 2.75...2.85 : (2.70...2.90) Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 875 Rack travel in mm : 11.40...11.50 Del.guantity cm3/: 19.2...19.4 100 s: (19.0...19.6) cm3 : 0.5Spread 100 s: (0.9) rpm : 325.02nd speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 4.0...4.6 100 s: (3.8...4.8) cm3 : 0.8Spread 100 s: (1.2) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 325 : 1.20...1.40 travel mm 2nd speed rpm : 450 travel mm : 2.80...3.20 3rd speed : 650 rpm : 5.60...5.80 travel mm rpm : 900 4th speed : 8.30...8.50 travel mm : 1100 5th speed rpm : 10.30...10.80 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 875 Aneroid pressure h: 1200 Anerous F. Del.quantity 1000 : 192.0...194.0 : (190.0...196.0) : 5.00 : (9.00) Spread cm3 1000

Prestroke mm

RATED SPEED 1/min : 275 (285) Speed 1st version Control lever FUEL DELIVERY CHARACTERISTICS position degrees: 54...62 1st version Testina: Aneroid pressure h: 1200 1st rack travel in: 10.40 Speed rpm : 510
Del.quantity cm3/: 268.0...274.0
1000 s: (266.0...276.0) Speed rpm : 915...925 2nd rack travel in: 4.00 rpm : 1025...1055 Speed 4th rack travel in: 1150 cm3 : 8.00Spread 1000 s: (12.0) Speed rpm : 0.09...1.00Aneroid pressure h: -Speed rpm : 850 LOW IDLE 1 Del.quantity cm3/: 159.0...161.0 * 1000 s: (136.5...157.0) Control lever position degrees: 7...15 Aneroid pressure h: rpm : 400 Testing: Speed Del.quantity cm3/: 157.5...161.5 Speed rpm Minimum rack trave: 5.90 1000 s: (155.5...163.5) : 325 rpm Speed Rack travel in mm : 4.70...4.90 **BREAKAWAY** CONSTANT REGULATION rpm : 325...520 1st version Speed 1mm rack travel less than TORQUE CONTROL Dimension a mm full load rack tr: 10.40 Torque control curve - 1st version Speed rpm : 915...925 1st speed rpm : 875 Rack travel in m: 11.40...11.50 INTERMEDIATE RATED SPEED 2nd speed rpm : 510 Rack travel in m: 12.80...13.00 Rack travel in mm: 10.80 Speed rpm : 850 3rd speed rpm : 600 Rack travel in m: 12.40...12.80 STARTING FUEL DELIVERY rpm : 450 4th speed Rack travel in m: 0.00...12.50 Speed rpm : 100 Del.quantity cm3/: 190.0...230.0 1000 s: (180.0...240.0) Aneroid/Altitude Compensator Test Rack travel in mm : 10.40...11.00 1st version LOW IDLE Setting Speed : 510 rpm : 325 rom Speed Rack travel in mm : 4.70...4.90 hPa : 1200 Pressure : 12.80...13.00 Del.quantity cm3/: 40.0...46.0 Rack travel mm 1000 s: (38.0...48.0) cm3 : 8.00 Spread Measurement 1/min: 510 1000 s: (12.00) Speed Remarks: 1st pressure hPa : -Rack travel in m: 8.00...8.40 : MACK # 313GC5185-P24 2nd pressure hPa : 355 Rack travel in m: 9.40...9.50 Setting and blocking of pointer of 3rd pressure hPa : 630 start-of-delivery sensor on cyl. 1 Rack travel in m: 11.50...11.90 start of delivery

* This test specification applies only

START CUT-OUT

to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment. Bow dimension:

Sliding-sleeve position = 37.0 mm

Note remarks

: MAC 12,0 h2 Test sheet

: 08.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 746 896

Injection pump

Pump designation : PES6P120A720RS7200

EP type number : 0 412 726 833

Governor

Governor design. : RQV325...900PA944-11

: 0 421 815 260 Governer no.

Customer-spec. information

: MACK TRUCKS Customer

: E7-350 Engine

1st version kw : 261.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening 1

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

: 2.75...2.85 : (2.70...2.90) Prestroke mm

Rack travel in mm : 11.00...13.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50

& maximum rack tra: 12.00 Difference ° CS : 3.00...3.50

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 14.60...14.70

Del.quantity cm3/: 27.9...28.1

100 s: (27.7...28.3)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.02nd speed

Rack travel in mm : 4.8...5.0 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

1.40...1.60 travel mm

2nd speed 450 rpm

2.80...3.20 travel mm

: 700 3rd speed rpm

: 6.10...6.30 travel mm

4th speed : 900 rom

: 8.50...8.70 travel mm

1050 5th speed rpm

9.80...10.20 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 900 Speed 1st pressure hPa : - Rack travel in m: 8.10...8.50 Aneroid pressure h: 1200 : 279.5...281.5 1000 : (277.5...283.5) Del.quantity 2nd pressure hPa : 365 : 5.00 Rack travel in m: 9.70...9.80 Spread cm3 1000 : (9.00) 3rd pressure hPa : 765 Rack travel in m: 12.80...13.20 RATED SPEED START CUT-OUT 1st version 1/min: 250 (255) Control lever Speed position degrees: 59...67 FUEL DELIVERY CHARACTERISTICS Testing: 1st rack travel in: 13.60 rpm : 940...950 Speed 1st version 2nd rack travel in: 4.00 Aneroid pressure h: 1200 Speed rpm : 1105...1135 4th rack travel in: 1200 Speed Speed rpm : 625 Del.quantity cm3/: 287.0...293.0 1000 s: (285.0...295.0) Speed rpm : 0.00...1.00cm3 : 8.00Spread 1000 s: (12.0) LOW IDLE 1 Control Lever Aneroid pressure h: -Speed rpm : 400 Del.quantity cm3/ : 152.0...156.0 1000 s: (150.0...158.0) position degrees: 8...16 Testing: Speed rpm : 275 Minimum rack trave: 6.00 BREAKAWAY rpm Rack travel in mm : 4.80...5.00 1st version 1mm rack travel less than CONSTANT REGULATION rpm : 325...520 Speed full load rack tr: 13.60 rpm : 940...950 TORQUE CONTROL Speed Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY rpm : 900 1st speed Rack travel in m: 14.60...14.70 rpm : 625 2nd speed Rack travel in m: 13.60...13.80 d speed rpm : 800 3rd speed Rack travel in m: 14.00...14.20 4th speed rpm : 675 Rack travel in m: 13.60...13.80 LOW IDLE : 500 5th speed rpm Rack travel in m: 12.50...12.90 Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Aneroid/Altitude Compensator Test Spread cm3 : 8.001000 s: (12.00) 1st version Setting Remarks: : MACK # 313GC5188-P12 Speed rpm : 900 hPa : 1200 Pressure Setting and blocking of pointer of : 14.60...14.70 Rack travel mm start-of-delivery sensor on cyl. 1 start of delivery Measurement 1/min: 900 Speed

C13

Bow dimension: Sliding-sleeve position = 37.0 mm

Note remarks

Test sheet : MAC 12,0 h1 Edition : 08.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 402 746 897

Injection pump

Pump designation : PES6P120A720RS7200

EP type number : 0 412 726 833

Governor

Governor design. : RQV325...875PA944-12

K

Governer no. : 0 421 815 261

Customer-spec. information

Customer : MACK TRUCKS

Engine : EM7-300

1st version kW : 224.0 Rated speed : 1750

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly : 1 688 901 101

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35

(3.20...3.40)

Rack travel in mm : 11.00...13.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Phasing

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 4.50...0.00

& maximum rack tra: 12.00

Difference ° CS : 2.50...3.00

BASIC SETTING

1st speed rpm: 875

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 24.8...25.0

100 s: (24.6...25.2)

Spread cm3: 0.5

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 4.8...5.0 Del.quantity cm3/ : 4.0...4.6

100 s: (3.8...4.8)

Spread cm3: 0.8

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

travel mm : 1.40...1.60

2nd speed rpm: 450

travel mm : 3.30...3.70

3rd speed rpm: 700

travel mm : 7.90...8.30

4th speed rpm : 900

5th speed rpm: 1050

travel mm : 10.60...11.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 875

2nd pressure hPa : 370
Rack travel in m: 10.30...10.40
3rd pressure hPa : 760 : 248.5...250.5 1000 : (246.5...252.5) Del.quantity : 5.00 Rack travel in m: 13.10...13.50 Spread cm3 1000 : (9.00) START CUT-OUT RATED SPEED 1/min: 250 (255) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 61...69 1st version Testing: 1st rack travel in: 13.00 Aneroid pressure h: 1200 rpm : 915...925 Speed rpm : 510 Speed Del.quantity cm3/: 330.5...336.5 1000 s: (328.5...338.5) 2nd rack travel in: 4.00 rpm : 1065...1095 Speed 4th rack travel in: 1200 cm3 : 8.00 Spread 1000 s: (12.0) Speed rpm : 0.00...1.00Aneroid pressure h: rpm : 400 LOW IDLE 1 Speed Del.quantity cm3/: 156.0...160.0 Control Lever 1000 s: (154.0...162.0) position degrees: 8...16 Testing: Speed rpm : 275 BREAKAWAY Minimum rack trave: 6.00 rpm : 325 1st version Rack travel in mm : 4.80...5.00 1mm rack travel less than CONSTANT REGULATION full load rack tr: 13.00 rpm : 915...925 Speed rpm : 325...520 Speed TORQUE CONTROL STARTING FUEL DELIVERY Dimension a mm : ? Torque control curve - 1st version rpm : 875 1st speed Speed rom Del.quantity cm3/: 190.0...230.0 Rack travel in m: 14.00...14.10 2nd speed rpm : 510 1000 s: (180.0...240.0) Rack travel in m: 14.70...14.90 Rack travel in mm : 19.00...21.00 3rd speed rpm : 575 Rack travel in m: 14.70...14.90 LOW IDLE 4th speed rpm : 450 Rack travel in m: 13.80...14.20 Speed rpm : 325 Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1000 s: (38.0...48.0) Aneroid/Altitude Compensator Test : 8.00 Spread cm3 1000 s: (12.00) 1st version Remarks: Setting : 510 : MACK # 313GC5188-P10 Speed rom Pressure hPa : 1200 Rack travel mm : 14.70...14.90 Setting and blocking of pointer of start-of-delivery sensor on cyl. 1 start of delivery Measurement 1/min: 510 Speed Bow dimension: Sliding-sleeve position = 37.0 mm1st pressure hPa : -Rack travel in m: 8.70...9.10

Aneroid pressure h: 1200

Note remarks

Test sheet : MAC 15,0 to Edition : 16.02.90

Replaces

Test oil

: ISO-4113

Combination no.

: 0 402 748 801

Injection pump

Pump designation : PES8P120A920/4LS7184

EP type number

: 0 412 728 802

Governor

Governor design.

: RQV325...950PA848-16

Governer no.

: 0 421 815 196

Customer-spec. information : MACK Customer

Engine

: E9 500

1st version kW

: 373.0

Rated speed

: 1900

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

assembly

: 1 688 901 101

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm

: 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 11.00...13.00

Firing order

: 1-2-7-8-4-5-6-3

Phasing

: 0-45-90-135-180-225-

270-315

Tolerance + - °

: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 15.00...15.10

Del.quantity cm3/: 23.0...23.2

100 s: (22.7...23.5)

Spread

cm3 : 0.5

100 s: (0.9)

rpm : 325.02nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 3.8...4.4

100 s: (3.6...4.6)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325

: 1.30...1.60 travel mm

2nd speed rpm : 450

: 2.80...3.10 travel mm

3rd speed rpm : 800

5.70...5.90 travel mm

rpm : 1050 4th speed

: 7.80...8.10 travel mm

: 1200 5th speed rom

: 9.50...9.80 travel mm

GUIDE SLEEVE POSITION Control-lever position

Speed

Degree: -1 rpm : 1150

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

2nd pressure hPa : 230 Rack travel in m: 10.60...10.70 1st version Speed rpm : 950 3rd pressure hPa : 535 Aneroid pressure h: 900 : 230.0...232.0 Rack travel in m: 13.20...13.50 Del.quantity 1000 : (227.9...235.0) : 5.00 Spread cm3 START CUT-OUT 1000 : (9.00) 1/min: 270 (280) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 58...66 1st version Aneroid pressure h: 900 Testing: : 650 Speed rpm Del.quantity cm3/: 252.0...258.0 1000 s: (249.0...261.0) 1st rack travel in: 14.00 rpm : 990...1000 Speed cm3 : 10.00 2nd rack travel in: 4.00 Spread 1000 s: (14.0) : 1135...1165 Speed rom 4th rack travel in: 1250 Aneroid pressure h: 900 : 950 rom : 0.00...1.00Speed Speed rom Del.quantity cm3/: 199.0...201.0 * 1000 s: (186.0...213.5) LOW IDLE 1 Aneroid pressure h: -Control lever Speed rpm : 400 Del.quantity cm3/: 144.0...148.0 1000 s: (142.0...150.0) position degrees: 13...21 Testing: Speed : 275 rom Minimum rack trave: 6.20 : 325 **BREAKAWAY** rpm Rack travel in mm : 5.60...5.80 1st version 1mm rack travel less than CONSTANT REGULATION rpm : 325...550 Speed full load rack tr: 14.00 TORQUE CONTROL rpm : 990...1000 Speed Dimension a mm Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 950 Rack travel in m: 15.00...15.10 Speed rpm : 100 Del.quantity cm3/ : 145.0...185.0 1000 s: (135.0...195.0) 2nd speed rpm : 650 Rack travel in m: 14.50...14.70 3rd speed rpm : 500 Rack travel in mm : 11.10...11.50 Rack travel in m: < 14.00 Aneroid/Altitude LOW IDLE Compensator Test rpm : 325 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 38.0...44.0 1000 s: (36.0...46.0) 1st version Setting cm3 : 8.00: 950 Speed rpm Spread 1000 s: (12.00) Pressure hPa : 900 Rack travel mm : 15.00...15.10 Remarks: : MACK # 313GC5180P2 Measurement 1/min: 950 Speed Setting and blocking of pointer of 1st pressure hPa : start-of-delivery sensor on cyl. 1 Rack travel in m: 9.00...9.40 start of delivery

Bow dimension: Sliding-sleeve position = 37.0 mm * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

Test sheet : MAC 15,0 a Edition : 23.03.90 : 31.10.89 Replaces Test oil : ISO-4113

: 0 402 748 802 Combination no.

Injection pump

Pump designation : PES8P120A920/4LS7159

: 0 412 728 801 EP type number

Governor

: RQV325...1050PA848-Governor design.

21K

: 0 421 815 201 Governer no.

Customer-spec. information Customer : MACK

: EE9 502 Engine

1st version kW : 368.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65 : (3.50...3.70)

Rack travel in mm : 9.00...12.00 Firing order : 1-2-7-8-4-5-6-3

: 0-45-90-135-180-225-Phasing

270-315

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 630

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 20.7...20.9

100 s: (20.4...21.2)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 325.0 2nd speed Rack travel in mm: 4.8...5.0 Del.quantity cm3/: 4.0...4.6

100 s: (3.8...4.8)

cm3 : 0.8Spread 100 s: (1.2)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 325 1.30...1.60 travel mm

rpm : 450 2nd speed

: 2.30...2.70 travel mm

rpm : 800 3rd speed

: 4.40...4.80 travel mm

: 1050 4th speed rpm

: 6.90...7.10 travel mm

: 1200 5th speed rom

: 8.90...9.20 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1220 Speed Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

2nd pressure hPa : 195 Rack travel in m: 10.20...10.30 3rd pressure hPa : 410 1st version rpm : 630 Speed Aneroid pressure h: 1200 : 207.0...209.0 Rack travel in m: 12.10...12.50 Del.quantity 1000 : (204.9...212.0) : 5.00 cm3 START CUT-OUT Spread 1000 : (9.00) 1/min : 280 (290) Speed RATED SPEED FUEL DELIVERY CHARACTERISTICS 1st version Control lever position degrees: 57...65 1st version Aneroid pressure h: 1200 : 1050 Testina: Speed rpm Del.quantity cm3/: 202.0...208.0 1st rack travel in: 12.10 1000 s: (199.0...211.0) rpm : 1095...1105 Speed 2nd rack travel in: 4.00 cm3 : 10.00Spread rpm : 1180...1210 1000 s: (14.0) Speed 4th rack travel in: 1300 Aneroid pressure h: 1200 Speed rpm : 850 Del.quantity cm3/ : 159.0...161.0 * 1000 s: (151.0...173.5) rpm : 0.00...1.00 Speed LOW IDLE 1 Aneroid pressure h: -Control lever position degrees: 9...17 rpm : 400 Del.quantity cm3/: 170.5...174.5 1000 s: (168.5...176.5) Testing: Speed rom Minimum rack trave: 1.50 BREAKAWAY rpm Rack travel in mm : 4.80...5.00 1st version CONSTANT REGULATION 1mm rack travel less than rpm : 325...600 Speed full load rack tr: 12.10 TORQUE CONTROL Speed rpm : 1095...1105 Dimension a mm :? Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 630 Rack travel in m: 11.90...12.00 rpm : 1050 2nd speed Speed : 100 rpm Rack travel in m: 13.10...13.30 Del.quantity cm3/: 150.0...190.0 1000 s: (145.0...195.0) 3rd speed rpm : 500 Rack travel in m: < 11.30 Rack travel in mm : 9.50...9.90 Aneroid/Altitude LOW IDLE Compensator Test Speed rpm Rack travel in mm : 4.80...5.00 Del.quantity cm3/: 40.0...46.0 1st version 1000 s: (38.0...48.0) Setting Spread cm3 : 8.00: 1050 Speed rpm hPa : 1200 1000 s: (12.00) Pressure Rack travel mm : 13.10...13.30 Remarks: Measurement : MACK # 313GC5178P2 Speed 1/min: 1050 Setting and blocking of pointer of 1st pressure hPa : start-of-delivery sensor on cyl. 1 Rack travel in m: 9.10...9.50 start of delivery

Bow dimension: Sliding-sleeve position = 37.0 mm * This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

Note remarks

: MAC 15,0 b1 Test sheet : 01.02.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 402 748 803

Injection pump

Pump designation: PES8P120A920/4LS7184

EP type number : 0 412 728 802

Governor

: RQV325...950PA848-22 Governor design.

: 0 421 815 202 Governer no.

Customer-spec. information Customer : MACK

: E9 450 Engine

1st version kW : 331.0 : 1900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Overflow

quantity min. 1/h: 160...170

Test nozzle holder

: 1 688 901 101 assembly

Opening.

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 3.55...3.65

: (3.50...3.70)

Rack travel in mm : 11.00...13.00 Firing order : 1-2-7-8-4-5-6-3

Phasing : 0-45-90-135-180-225-

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 950 1st speed

Rack travel in mm : 13.90...14.00

Del.guantity cm3/: 21.0...21.2

100 s: (20.7...21.5)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 325.0

Rack travel in mm : 5.4...5.6 Del.quantity cm3/ : 3.8...4.4 100 s: (3.6...4.6)

cm3 : 0.8Spread

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 325 1st speed

: 1.40...1.70 travel mm

rpm : 450 2nd speed

: 2.80...3.10 travel mm

3rd speed : 800 rpm

travel mm : 5.70...5.90 : 1050

4th speed rpm

: 7.80...8.10 travel mm

: 1200 5th speed rpm

: 9.60...9.90 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1145 Speed

Rack travel in mm : 7.00...13.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version 1st pressure hPa : -Speed rpm : 950 Rack travel in m: 8.70...9.10 2nd pressure hPa : 230 Aneroid pressure h: 900 Del.quantity : 210.0...215.0) Rack travel in m: 10.20...10.30 3rd pressure hPa : 535 : 5.00 Rack travel in m: 12.60...13.00 cm3 Spread 1000 : (9.00) START CUT-OUT RATED SPEED 1/min : 270 (280) Speed 1st version Control Lever FUEL DELIVERY CHARACTERISTICS position degrees: 56...64 1st version Testina: 1st rack travel in: 12.90 Speed rpm : 990...1000 Aneroid pressure h: 900 : 650 Speed rpm Del.quantity cm3/: 216.0...222.0 1000 s: (213.0...225.0) 2nd rack travel in: 4.00 rpm : 1125...1155 Speed cm3 : 10.00 4th rack travel in: 1250 Spread 1000 s: (14.0) rpm : 0.00...1.00Speed Aneroid pressure h: 900 Speed rpm : 950 Del.quantity cm3/ : 199.0...201.0 * 1000 s: (186.0...213.5) LOW IDLE 1 Control lever position degrees: 12...20 Aneroid pressure h: rpm_ : 400 Speed Testing: Del.guantity cm3/: 144.0...148.0 Speed : 275 rpm 1000 s: (142.0...150.0) Minimum rack trave: 6.00 : 325 rpm Rack travel in mm : 5.40...5.60 BREAKAWAY CONSTANT REGULATION rpm : 325...500 1st version Speed 1mm rack travel less than TORQUE CONTROL full load rack tr: 12.90 Dimension a mm :? rpm : 990...1000 Torque control curve - 1st version Speed rpm : 950 1st speed Rack travel in m: 13.90...14.00 STARTING FUEL DELIVERY nd speed rpm : 650
Rack travel in m: 13.20...13.40
rd speed rpm : 750
Rack travel in m: 13.70...13.90 2nd speed Speed rpm : 100 Del.quantity cm3/ : 145.0...185.0 1000 s: (135.0...195.0) Rack travel in mm : 11.00...11.40 3rd speed 4th speed rpm : 500 Rack travel in m: < 12.40 Aneroid/Altitude LOW IDLE Compensator Test Speed rpm : 325
Rack travel in mm : 5.40...5.60
Del.quantity cm3/: 38.0...44.0
1000 s: (36.0...46.0) 1st version Settina : 950 cm3 : 8.00Speed Spread MC hPa : 900 1000 s: (12.00) Pressure : 13.90...14.00 Rack travel mm Remarks: : MACK # 313GC5180P4 Measurement 1/min: 950 Speed Setting and blocking of pointer of

start-of-delivery sensor on cyl. 1 start of delivery

Bow dimension:

Sliding-sleeve position = 37.0 mm

* This test specification applies only
to the engine/nozzle-and-holder
assemblies on an injection-pump test
bench: setting for test equipment,
check value for engine equipment.

Note remarks

: MB 11,7 g 1 Test sheet : 05.03.90 Edition Replaces : 21.8.87 : ISO-4113 Test oil

: 0 402 776 803 Combination no.

Injection pump

Pump designation : PES6P120A720LS7107-1

EP type number : 0 412 726 805

Governor

Governor design. : RSV350...750P0A520-1

: 0 421 833 262 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 A Engine

1st version kW : 180.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

rpm: 700 1st speed

Rack travel in mm : 14.80...14.90

Del.guantity cm3/: 22.4...22.6

100 s: (22.1...22.9)

cm3 : 0.5Spread

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm : 5.5...5.8 Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 224.0...226.0 Del.quantity 1000 : (221.0...229.0)

: 5.00 Spread cm3

1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 24...32

Testing:

1st rack travel in: 13.80 Speed rpm : 750...755

2nd rack travel in: 4.00

rpm : 775...788 Speed

4th rack travel in: 1000

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 63...71

Setting point w/out bumper spring

rpm Rack travel in mm : 5.6

Testing:

Speed rpm: 100
Minimum rack trave: 19.50
Speed rpm: 350
Rack travel in mm: 5.50...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.80 rpm : 750...755 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 230.0...250.0 1000 s: (226.0...254.0)

Remarks:

Observe VDT-I-420/120

APPLICATION

Generator

Note remarks

Test sheet : MB 12,0 c 1 : 31.07.90

Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 402 776 805A

Injection pump

Pump designation : PES6P120A720LS7155

: 0 412 726 812 EP type number

Governor

: RSV350...1050P0A529-Governor design.

: 0 421 833 295 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M447 LA Engine

1st version kW : 250.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening.

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm

: 5.20...5.30 : (5.15...5.35)

Rack travel in mm : 9.00...12.00 : 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 23.3...23.5

100 s: (23.0...23.8)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed

Rack travel in mm: 4.2...4.7 Del.quantity cm3/: 1.0...1.6

100 s: (0.7...1.9)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Aneroid pressure h: 1400

Del.quantity : 233.0...238.0)

cm3 : 5.00Spread

1000 : (9.00)

RATED SPEED

1st version

Control lever position degrees: 100...108 Testing: 1st rack travel in: 11.70 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 Speed rpm : 1150...1180 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 74...82 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 4.4 : 350 Speed rpm Rack travel in mm : 4.20...4.70 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 600 rpm hPa : 650 Pressure : 11.70...11.90 Rack travel mm Measurement $1/\min : 600$ Speed 1st pressure hPa : 350 Rack travel in m: 9.80...10.00 2nd pressure hPa : 400 Rack travel in m: 10.20...10.40 3rd pressure hPa : 850 Rack travel in m: 12.30...12.50 4th pressure hPa : 950 Rack travel in m: 12.60...12.80 5th pressure hPa : -Rack travel in m: 9.80...10.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 650 rpm : 600 Speed Del.quantity cm3/: 198.0...201.0 1000 s: (195.0...204.0) cm3 : 8.00Spread 1000 s: (12.0)

Del.quantity cm3/: 151.0...154.0 1000 s: (148.0...157.0) cm3 : 8.00 Spread 1000 s: (12.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 240.0...260.0 1000 s: (236.0...264.0) Remarks:

Speed

Aneroid pressure h: -

man

: 500

Note remarks

Test sheet : MB 11,7 c 3 Edition : 19.03.90 Replaces : 29.3.89

Test oil : ISO-4113

Combination no. : 0 402 776 806

Injection pump

: PES6P120A720LS7120 Pump designation

: 0 412 726 803 EP type number

Governor

: RSV350...1050P0A529-Governor design.

: 0 421 833 317 Governer no.

Customer-spec. information

: MERCEDES-BENZ Customer

: 0M447 A Engine

: 213.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Overflow

quantity min. 1/h: 100...120

Test nozzle holder

: 1 688 901 019 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter

x Wall thickness

: 6.00X1.50X1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.20...5.30 Prestroke mm

: (5.15...5.35)

Rack travel in mm : 9.00...12.00

: 6-2-4-1-5-3 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 6

BASIC SETTING

rpm: 650 1st speed

Rack travel in mm : 14.00...14.20

Del.quantity cm3/: 20.2...20.4

100 s: (19.9...20.7)

cm3 : 0.5Spread

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.4...2.0

100 s: (1.1...2.3)

cm3 : 0.8 Spread

100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 650 Speed Aneroid pressure h: 650

: 202.0...204.0 Del.quantity 1000 : (199.0...207.0)

: 5.00 cm3 Spread 1000 : (9.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing: 1st rack travel in: 12.30 rpm : 1080...1090 Speed 2nd rack travel in: 4.00 Speed rpm : 1170...1200 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.7 Speed rpm : 350 Rack travel in mm : 5.60...5.80 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1030 Rack travel in m: 13.30...13.50 nd speed rpm : 950 Rack travel in m: 13.70...13.90 2nd speed rpm : 875 3rd speed Rack travel in m: 14.20...14.40 rpm : 750 4th speed Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Settina : 600 Speed rpm hPa : 650 Pressure : 14.00...14.20 Rack travel mm Measurement 1/min: 600 Speed 1st pressure hPa : 300 Rack travel in m: 12.30...12.50 2nd pressure hPa : 400 Rack travel in m: 13.20...13.40 3rd pressure hPa : 850 Rack travel in m: 14.30...14.50 4th pressure hPa : -Rack travel in m: 11.30...11.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 1030 Speed

Del.quantity cm3/: 194.0...197.0 1000 s: (191.0...200.0) Spread cm3 : 8.00 1000 s: (12.0) Aneroid pressure h: 1200 : 750 Speed rpm Del.quantity cm3/: 219.0...224.0 1000 s: (216.0...227.0) cm3 : 8.00 Spread 1000 s: (12.0) Aneroid pressure h: -: 500 Speed rom Del.quantity cm3/: 144.0...146.0 1000 s: (141.0...149.0) cm3 : 8.00Spread 1000 s: (12.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.30 Speed rpm : 1080...1090

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 190.0...210.0 1000 s: (186.0...214.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 S : 10.08.90 Test sheet Edition Replaces : ISO-4113 Phasing Test oil Combination no. : 0 403 436 112 Injection pump Pump designation : PES6MW100/120RS1206 EP type number : 0 413 406 197 Governor Governor design. : RQV350...1200MW78-4 : 0 420 083 232 Governer no. Customer-spec. information Customer : CUMMINS Engine : 6 CTA : 179.0 Spread 1st version kW Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve Spread : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 014 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 Speed x Length mm (A) Injection pump setting values Insp. values in parentheses

: 3.05...3.15 Prestroke mm : (3.00...3.20) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 11.70...11.80 Del.quantity cm3/: 14.5...14.7 100 s: (14.3...14.9) cm3 : 0.3100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 5.0...5.2 Del.quantity cm3/: 1.1...1.5 100 s: (0.8...1.7) cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1400 1st speed : 8.80...9.20 travel mm 2nd speed rpm : 1200 : 7.30...7.50 rpm : 600 travel mm 3rd speed : 4.00...4.60 travel mm : 350 4th speed rpm : 1.80...2.20 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Aneroid pressure h: 900 : 145.0...147.0 Del.quantity 1000 : (143.0...149.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

1st version

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 10.70

rpm : 1265...1275 Speed

2nd rack travel in: 4.00

Speed rpm : 1425...1455 4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 10...18

Setting point w/out bumper spring

Speed rom Rack travel in mm: 5.1

Testing:

: 100 Speed rpm

Minimum rack trave: 6.50

rpm : 350 Speed

Rack travel in mm : 5.00...5.20

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

Pressure hPa : -

: 8.90...9.00 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 265

Rack travel in m: 9.70...9.80

2nd pressure hPa : 505

Rack travel in m: 10.90...11.20

3rd pressure hPa : 900 Rack travel in m: 11.70...11.80

START CUT-OUT

Speed 1/min: 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rom : 500 Speed

Del.quantity cm3/: 76.0...78.0

1000 s: (74.0...80.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

Speed rpm : 1265...1275

STARTING FUEL DELIVERY

Speed rpm: 100 Del.quantity cm3/: 205.0...225.0 1000 s: (202.0...228.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350
Rack travel in mm : 5.00...5.20
Del.quantity cm3/ : 11.0...15.0

1000 s: (8.5...17.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Start-of-delivery mark/lock = 8.0° angular displacement of the cam after

start of delivery of cylinder 1.

Note remarks

Test sheet : MB 4,0 A 20 : 16.08.90 Edition : 25.08.87 Replaces : ISO-4113 Test oil

Combination no. : 0 403 444 113

Injection pump

Pump designation : PES4MW100/720RS1151

: 0 413 404 104 EP type number

Governor

Governor design: : RQV300...1300MW50-3

: 0 420 083 129 Governer no.

Customer-spec. information : MB-NFZ Customer

Engine : OM 364 LA

1st version kW : 100.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.8...6.9 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1340 1st speed

: 8.50...8.70 travel mm rpm : 1450 2nd speed

: 9.50...9.90 travel mm

: 500 3rd speed rpm

: 2.70...3.30 travel mm

: 300 4th speed rpm

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300Speed Aneroid pressure h: 700

: 98.0...100.0 Del.quantity

1000 : (96.0...102.0)

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

006

1st version Control lever position degrees: 49...57 Testing: 1st rack travel in: 11.60 Speed rpm : 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.8 Testina: : 100 Speed rpm Minimum rack trave: 8.40 300 Speed rpm Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rom : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting rpm : 500 hPa : 200 Speed rpm Pressure : 11.30...11.40 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 335 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 : 600 Speed rpm Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.60 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0)

LOW IDLE

rpm : 300 Speed Rack travel in mm : 6.80...6.90 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Note remarks

Test sheet

: MB 4,0 D 21 : 16.08.90

Edition

Replaces Test oil

: ISO-4113

Combination no. : 0 403 444 114

Injection pump

Pump designation : PES4MW100/720RS1151

EP type number

: 0 413 404 104

Governor

Governor design. : RQV300...1300MW50-4

Governer no.

: 0 420 083 149

Customer

Customer—spec. information : MB-NFZ

Engine

: OM 364 LA

1st version kW

: 100.0

Rated speed

: 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Opening

pressure, bar

: 172...175

Test lines

: 1 680 750 015

Outside diameter

x Wall thickness

x Length mm

: 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

DO8

Firing order

: 1-3-4-2

Phasing

: 0-90-180-270

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm : 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread

cm3 : 0.3

100 s: (0.6)

rpm : 300.0

2nd speed Rack travel in mm: 6.8...6.9

Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread

cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1340 1st speed

: 8.50...8.70 travel mm

2nd speed

rpm : 1450

travel mm

: 9.50...9.90

3rd speed

rpm : 500

travel mm

2.70...3.30

4th speed

rpm

: 300

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Del.quantity

Spread

Speed

rpm : 1300

Aneroid pressure h: 700

: 98.0...100.0

1000 : (96.0...102.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 49...57 Testina: 1st rack travel in: 11.60 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1445...1475 4th rack travel in: 1550 rom : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.8 Testing: rpm : 100 Speed Minimum rack trave: 8.40 Speed rpm : 300 Rack travel in mm : 6.80...6.90 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 hPa : 200 Pressure : 11.30...11.40 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.50...10.60 2nd pressure hPa : 335 Rack travel in m: 12.10...12.40 3rd pressure hPa : 700 Rack travel in m: 12.60...12.70 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 Speed rpm : 600 Del.quantity cm3/: 82.5...85.5 1000 s: (80.0...88.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 49.0...51.0 1000 s: (47.0...53.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1340...1350 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 85.0...95.0 1000 s: (82.0...98.0) LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.80...6.90
Del.quantity cm3/ : 10.0...14.0
1000 s: (7.5...16.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

009

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 4,0 A 25 Test sheet Edition : 16.08.90 Replaces : ISO-4113 Test oil Combination no. : 0 403 444 115 Injection pump Pump designation : PES4MW100/720RS1127 EP type number : 0 413 404 103 Governor Governor design. : RQV300...1200MW48-6 : 0 420 083 157 Governer no. Customer-spec. information Customer : MB-NFZ : 0M364A Engine 1st version kW : 77.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening 1 : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses

: 3.70...3.80

: (3.65...3.85)

Set equal delivery quant.

Rack travel in mm : 9.00...12.00

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

: 1-3-4-2 Firing order : 0-90-180-270 Phasina Tolerance + - ° : 0.50 (0.75) BASIC SETTING rom: 1200 1st speed Rack travel in mm : 11.00...11.10 Del.quantity cm3/: 7.5...7.7 100 s: (7.3...7.9) Spread cm3 : 0.3100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 8.2...8.4 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) °cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1325 1st speed 9.40...9.80 travel mm 1250 2nd speed rom : : 8.60...8.80 travel mm rpm : 550 3rd speed : 3.00...3.60 travel mm rpm : 300 4th speed : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1250 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1200 : 75.0...77.0 Del.quantity : (73.0...79.0) : 3.50 1000 Spread cm3 1000 : (6.00) RATED SPEED

1st version

D10

Control lever position degrees: 48...56 Testina: 1st rack travel in: 10.00 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1310...1340 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 18...26 Setting point w/out bumper spring rpm Rack travel in mm: 8.3 Testina: Speed rom Minimum rack trave: 9.70 rpm : 300 Speed Rack travel in mm : 8.20...8.40 TORQUE CONTROL Torque control curve - 1st version rpm : 1200 1st speed Rack travel in m: 11.00...11.10 2nd speed rpm : 600 Rack travel in m: 12.00...12.20 3rd speed rpm : 800 Rack travel in m: 11.60...11.80 th speed rpm : 900 4th speed Rack travel in m: 11.20...11.40 START CUT-OUT Speed 1/min : 200 (230) FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 65.0...68.0 1000 s: (62.5...70.5) cm3 : 5.00 Spread 1000 s: (7.0) : 800 Speed rom Del.quantity cm3/: 70.0...73.0 1000 s: (67.5...75.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Dei.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 300

Rack travel in mm : 8.20...8.40 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

011

Note remarks

Test sheet : FIA 8,1 C 2 : 06.09.90 Edition : 04.86 Replaces Test oil : ISO-4113

: 0 403 446 114 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1012

: 0 413 406 008 EP type number

Governor

Governor design. : RQV300...1100MW19

: 0 420 083 014 Governer no.

Customer-spec. information : IVECO-OM Customer

: 8365.25.500 Engine

: 132.4 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 2.90...3.00 : (2.85...3.05) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300 2nd speed

Rack travel in mm : 6.3...6.4 Del.quantity cm3/ : 1.1...1.5

100 s: (0.9...1.8)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1100 1st speed travel mm : 8.5...8.7

rpm : 800 2nd speed

: 5.4...5.7 travel mm

: 500 3rd speed rpm

: 2.9...3.4 travel mm

300 4th speed rpm iravel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1100 Speed Rack travel in mm : 15.2...17.8

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

Aneroid pressure h: 500 : 96.0...98.0 Del.quantity

1000 : (94.0...100.0)

: 3.5 Spread cm3

1000 : (6.0)

RATED SPEED

1st version

Testina: 1st rack travel in: 10.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 4th rack travel in: 1300 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.3 Testina: Speed : 100 rom Minimum rack trave: 8.0 rpm : 300 Speed Rack travel in mm: 6.3...6.4 Rack travel in mm: 2.0 Speed rpm : 385...445 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 270 Pressure Rack travel mm : 12.10...12.20 Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70 2nd pressure hPa : 500 Rack travel in m: 12.40...12.50 3rd pressure hPa Rack travel in m: 11.20...11.30 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 500 : 700 Speed rpm Del.quantity cm3/: 101.0...105.0 1000 s: (99.0...107.0) Spread cm3: 5.0 1000 s: (7.0) D13

Control lever

position degrees: 45...53

Aneroid pressure h: -: 500 Speed man Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...78.0) Spread cm3 : 3.5 1000 s: (6.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.50 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 160 Rack travel in mm: 19.0

LOW IDLE

Speed : 300 rpm Rack travel in mm: 6.3...6.4 Del.quantity cm3/: 11.50...15.50 1000 s: (9.0...18.0) cm3 : 3.5 Spread 1000 s: (5.5)

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

After changing plunger—and—barrel assembly from 1 418 415 045 to ..083, perform setting/testing in accordance with test specifications of injectionpump assembly 0 403 446 203.

Note remarks

Test sheet : RVI 8,8 F : 06.07.90 Edition Replaces : 09.06.89 : ISO-4113 Test oil

: 0 403 446 129 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1016

: 0 413 406 010 EP type number

Governor

Governor design. : RQV300...1400MW25-2 Governer no. : 0 420 083 048

Customer-spec. information Customer : RVI

: MIDRO6.02-12 Engine

: 125.0 1st version kW Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 173...176 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1400

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 9.1...9.3

100 s: (8.9...9.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1)

Spread

cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm : 1400 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400 Aneroid pressure h: 700

: 91.0...93.0 Del.quantity

1000 : (89.0...95.0) cm3 : 3.50 1000 : (6.00)

Spread

RATED SPEED

1st version

Control Lever

position degrees: 58...66

Testing:

1st rack travel in: 10.10

rpm : 1450...1460 Speed

2nd rack travel in: 4.00

rpm : 1565...1595 Speed

4th rack travel in: 1700

rpm : 0.00...1.00Speed

LOW IDLE 1

D14

Control lever

position degrees: 9...17

Setting point w/out bumper spring

: 300 rpm

Rack travel in mm: 6.4 : 300 Speed man

Rack travel in mm : 6.30...6.50 Rack travel in mm : 2.00

: 490...550 Speed rpm : 200 Speed rpm

Maximum rack trave: 7.90

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed rpm hPa : 500 Pressure

: 11.10...11.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 9.40...9.50

2nd pressure hPa : 120

Rack travel in m: 9.90...10.00

3rd pressure hPa : 155

Rack travel in m: 10.70...10.80

START CUT-OUT

1/min : 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700

Speed rpm: 900 Del.quantity cm3/: 86.0...90.0 1000 s: (84.0...92.0)

cm3 : 5.00

Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 52.0...54.0 1000 s: (50.0...56.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1450...1460 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 94.0...104.0 1000 s: (91.0...107.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.30...6.50 Del.quantity cm3/: 15.0...19.0

1000 s: (12.5...21.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Start-of-delivery mark is 8° after start of delivery with control-rod

travel = 10.5 mm.

Note remarks

Test sheet : IHC 7,6 A 1 : 12.07.1990 Edition : 11.85 Replaces

: ISO-4113 Test oil

: 0 403 446 131 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1103

EP type number : 0 413 406 103

Governor

Governor design. : RQV350...1300MW43 : 0 420 083 050 Governer no.

Customer-spec. information Customer : NAVISTAR

: DT-466C Engine

: 154.5 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 016 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0.5 diameter mm

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 Prestroke mm : (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 11.90...12.00

Del.quantity cm3/: 10.30...10.50

100 s: (10.10...10.70)

Spread cm3 : 0.35

100 s: (0.6)

rpm : 350 2nd speed

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 1.60...2.00

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1375

Rack travel in mm : 15.6...16.4

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 900

Aneroid pressure h: 900

Del.quantity : 105.0...107.0)
Spread cm3 : 3.50

RATED SPEED

1st version

Control lever

position degrees: 60...65

Testing:

1st rack travel in: 10.90

rpm : 1340...1345 Speed

2nd rack travel in: 4.00

rpm : 1475...1485 Speed

5th rack travel in: 1600

Speed rpm : 0.00...1.00 LOW IDLE 1

Control lever

position degrees: 10...18

Setting point w/out bumper spring

: 350 man Rack travel in mm: 6.10

Testina:

: 100 rpm Speed Minimum rack trave: 9.0

rpm

Rack travel in mm: 6.0...6.2

CONSTANT REGULATION

rpm : 370...650 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom hPa : 280 Pressure

: 10.40...10.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 900

Rack travel in m: 11.90...12.00

2nd pressure hPa : -

Rack travel in m: 9.60...9.70 3rd pressure hPa : 510

Rack travel in m: 11.20...11.50

START CUT-OUT

1/min : 250 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 1300 Speed rpm

Del.quantity cm3/: 107.0...111.0 1000 s: (105.0...113.0)

cm3 : 6.5Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rpm

Del.quantity cm3/: 63.5...65.5 1000 s: (61.5...67.5)

BREAKAWAY

1st version

D17

1mm rack travel less than

full load rack tr: 10.90

rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.5Spread

1000 s: (5.5)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 B 1 : 12.07.1990 : 12.85 Test sheet Edition Replaces Test oil : ISO-4113 Combination no. : 0 403 446 135 Injection pump : 0 413 406 105 EP type number Governor Governor design. : RQV350...1200MW43 : 0 420 083 054 Governer no. Customer-spec. information Customer : NAVISTAR : DT-466C Engine : 121.3 1st version kW : 2400 : 2400 Rated speed Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar : 2.80 Test nozzle holder assembly : 1 688 901 016 Openina : 207...210 pressure, bar Orifice plate diameter mm : 0.5 Test lines : 1 680 750 008 Outside diameter x Wall thickness

Pump designation : PES6MW100/320RS1107 x Length mm : 6.00x2.00x600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 8.4...8.6 100 s: (8.2...8.8) Spread cm3 : 0.35100 s: (0.6) 2nd speed rpm : 350 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.60...2.00 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1375 Speed Rack travel in mm : 15.6...16.4 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 900 : 84.0...86.0 Del.quantity 1000 : (82.0...88.0) cm3 : 3.50 Spread 1000 : (6.0) RATED SPEED 1st version Control lever position degrees: 58...63 Testing: 1st rack travel in: 10.10 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1365...1375 Speed

5th rack travel in: 1450

: 0.00...1.00 Speed rom LOW TDIF 1 Control Lever position degrees: 10...18 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6.0 Testing: Speed : 100 rom Minimum rack trave: 9.0 rpm : 350 Speed Rack travel in mm: 5.9...6.1 CONSTANT REGULATION rpm : 370...650 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 900 Pressure : 11.10...11.20 Rack travel mm Measurement 1/min : 500Speed 1st pressure hPa : -Rack travel in m: 9.80...9.90 2nd pressure hPa : 135 Rack travel in m: 10.10...10.20 3rd pressure hPa : 300 Rack travel in m: 10.70...11.00 START CUT-OUT 1/min: 250 Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 : 1200 Speed rpm Del.quantity cm3/: 86.5...90.5 1000 s: (84.5...92.5) Spread cm3 : 6.5 1000 s: (7.0) Aneroid pressure h: -: 500 Speed

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0)

LOW IDLE

Speed rpm Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.51000 s: (5.5)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

rpm

Del.quantity cm3/: 61.5...63.5 1000 s: (59.5...65.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.00...3.10 : (2.95...3.15) Prestroke mm Note remarks Rack travel in mm : 9.00...12.00 Test sheet : 1- 5- 3- 6- 2- 4 : IHC 7,6 G Firing order : 12.07.1990 **Edition** : 11.85 Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 : 0.50 (0.75) Phasing Tolerance + - ° Combination no. : 0 403 446 139 Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1108 EP type number : 0 413 406 106 1st speed rpm: 850 Governor Rack travel in mm : 10.50...10.60 Governor design. : RQV350...1200MW43-5 : 0 420 083 058 Governer no. Del.quantity cm3/: 8.3...8.5 Customer-spec. information Customer : NAVISTAR 100 s: (8.1...8.7) Engine : DT-466B cm3 : 0.35Spread 1st version kW : 121.4 100 s: (0.6) Rated speed : 2400 2nd speed rpm : 350
Rack travel in mm : 5.8...5.9
Del.quantity cm3/ : 1.60...2.00 : 2400 Rated speed TEST BENCH REQUIREMENTS 100 s: (1.3...2.2) Test oil Spread cm3 : 0.3inlet temp. °C 100 s: (0.5) : 38...42 Overflow valve GUIDE SLEEVE POSITION : 2 417 413 040 Control-lever position Degree: -1 rpm : 1375 Inlet press., bar: 2.80 Speed Rack travel in mm : 15.6...16.4 Test nozzle holder : 1 688 901 016 FULL LOAD DELIV. AT FULL LOAD STOP assembly Opening 1st version pressure, bar : 207...210 rpm : 850 Speed Aneroid pressure h: 900 : 83.5...85.5 Orifice plate Del.quantity 1000 : (81.5...87.5) diameter mm : 0.5 : 3.50 Spread cm3 1000 : (6.0) Test Lines : 1 680 750 008 RATED SPEED Outside diameter x Wall thickness 1st version x Length mm : 6.00X2.00X600 Control lever position degrees: 56...61 (A) Injection pump setting values Insp. values in parentheses Testing: Set equal delivery quant. 1st rack travel in: 9.50

Speed rpm : 1240...1250 2nd rack travel in: 4.00

rpm

5th rack travel in: 1460

Speed

: 1360...1370

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 10...18 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 5.85 Testing: : 100 Speed rom Minimum rack trave: 9.0 rpm : 350 Speed Rack travel in mm: 5.8...5.9 CONSTANT REGULATION rpm : 360...640 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 man Pressure hPa : 205 : 9.70...9.80 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 900 Rack travel in m: 10.50...10.60 2nd pressure hPa : -Rack travel in m: 9.20...9.30
3rd pressure hPa : 340
Rack travel in m: 10.10...10.40 START CUT-OUT 1/min: 250 Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 900 rpm : 1200 Del.quantity cm3/: 88.5...92.5 1000 s: (86.5...94.5) cm3 : 6.5 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 59.0...61.0

1000 s: (57.0...63.0)

1st version 1mm rack travel less than full load rack tr: 9.50 rpm : 1240...1250 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 140.0...180.0 1000 s: (137.0...183.0) LOW IDLE rpm : 350 Speed Rack travel in mm: 5.8...5.9 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.5 Spread 1000 s: (5.5) Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Before checking sleeve position,

Set low idle at stop screw.

first adjust latching.

Set shutoff stop 1.5...2.0 mm before shutoff.

BREAKAWAY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 17 Test sheet Edition : 16.08.90 : 12.02.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 150 Injection pump Pump designation : PES6MW100/720RS1120 : 0 413 406 112 EP type number Governor : RQV300...1300MW59 Governor design. : 0 420 083 077 Governer no. Customer-spec, information Customer : DB : 0M3661 A Engine : 141.7 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina .

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 6.1...6.2 Del.quantity cm3/ : 0.9...1.3 100 s: (0.7...1.5)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90 2nd speed rpm : 1350

3rd speed rpm : 450

travel mm : 2.40...3.00 4th speed rpm : 300

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

Del.quantity : 86.0...88.0 1000 : (84.0...90.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1450...1480 4th rack travel in: 1530 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 82...90 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 8.00 rpm : 300 Rack travel in mm : 6.10...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm hPa : 310 Pressure Rack travel mm : 11.80...11.90 Measurement 1/min: 500 Speed 1st pressure hPa : 1000 Rack travel in m: 12.10...12.20 2nd pressure hPa : -Rack travel in m: 11.00...11.10 3rd pressure hPa : 280 Rack travel in m: 11.20...11.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Del.quantity cm3/: 73.0...76.0

1000 s: (70.5...78.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 47.0...49.0
1000 s: (45.0...51.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 83.0...93.0 1000 s: (86.0...96.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.10...6.20 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) cm3 : 3.50Spread 1000 s: (5.50) Remarks:

Note remarks

Test sheet : RVI 8,8 P
Edition : 06.07.90
Replaces : 12.09.86
Test oil : ISO-4113

Combination no. : 0 403 446 154

Injection pump

Pump designation : PES6MW100/320RS1025

EP type number : 0 413 406 012

Governor

Governor design. : RQ750MW42 Governor no. : 0 420 082 009

Customer—spec. information Customer : RVI

Engine : MIDRO6.02-12

1st version kW : 100.0 Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

Spread cm3:0.3

100 s: (0.6)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 700

Del.quantity : 133.5...135.5

1000 : (131.5...137.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 29...35

Testing:

1st rack travel in: 13.50

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 795...805

4th rack travel in: 825

Speed rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm: 100

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

Rack travel in mm : 19.00...21.00

Remarks:

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Note remarks

Test sheet : MB 6,0 D 47 : 16.08.90 : 12.02.90 Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 446 156

Injection pump

Pump designation: PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design.: RQV300...1300MW59

: 0 420 083 077 Governer no.

Customer-spec. information

: DB Customer

: 0M366LA Engine

: 141.7 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

; 3.50...3.60 Prestroke mm

: (3.45...3.65) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450 : 9.50...9.90 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm rpm : 450 3rd speed

: 2.40...3.00 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom : 1300 Aneroid pressure h: 1000

Del.quantity : 86.0...88.0 1000 : (84.0...90.0)

: 3.50 Spread cm3 : (6.00) 1000

RATED SPEED

1st version Control lever position degrees: 48...56 Testing: 1st rack travel in: 11.10 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1440...1470 Speed 4th rack travel in: 1530 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : 310 Pressure : 11.80...11.90 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 1000 Rack travel in m: 12.10...12.20 2nd pressure hPa : -Rack travel in m: 11.00...11.10 3rd pressure hPa : 280 Rack travel in m: 11.20...11.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/: 73.0...76.0 1000 s: (70.5...78.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 47.0...49.0 1000 s: (45.0...51.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : RVI 8,8 K 4 : 06.07.90 Edition : 12.01.90 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 164

Injection pump

Pump designation: PES6MW100/320RS1016

EP type number : 0 413 406 010

Governor

Governor design. : RQV300...1300MW25-4

: 0 420 083 094 Governer no.

Customer-spec. information : RVI Customer

: MIDRO6.02-12 Engine

: 113.Ú 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 033

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

: 173...176 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

Prestroke mm

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

; 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.80...10.90

Del.guantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.0 2nd speed

Rack travel in mm : 6.60...6.80 Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -1

rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 700

: 85.5...87.5 Del.quantity 1000 : (83.5...89.5)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing:

1st rack travel in: 9.80

rpm : 1370...1380 Speed

2nd rack travel in: 4.00

rpm : 1485...1515 Speed

4th rack travel in: 1650

: 0.00...1.00 Speed rom

LOW IDLE 1

Control lever position degrees: 8...16 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.5 : 300 Speed rpm Rack travel in mm : 6.60...6.80 : 200 Speed rpm Maximum rack trave: 3.20 CONSTANT REGULATION rpm : 340...550 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 143 Pressure : 10.50...10.60 Rack travel mm Measurement Speed 1/min: 500 1st pressure hPa : 700 Rack travel in m: 10.80...10.90 2nd pressure hPa : -Rack travel in m: 10.00...10.10 3rd pressure hPa : 115 Rack travel in m: 10.00...10.30 START CUT-OUT 1/min : 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm_ : 900 Speed Del.quantity cm3/: 82.0...86.0 1000 s: (80.0...88.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 56.0...58.0 1000 s: (54.0...60.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.80 Speed rpm : 1370...1380

E01

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.60...6.80
Del.quantity cm3/ : 14.0...18.0
1000 s: (11.5...20.5)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Start-of-delivery mark 10.5° cam angle after start of delivery cyl. 1

Note remarks

: MB 6,0 D 27 : 16.08.90 Test sheet Edition Replaces : 19.05.88 Test oil : ISO-4113

Combination no. : 0 403 446 179

Injection pump

Pump designation: PES6Mw100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RQV300...1300MW74

: 0 420 083 112 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366LA Engine

: 127.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1340 1st speed

: 8.50...8.70 travel mm

rpm : 1450 2nd speed

: 9.50...9.70 travel mm

: 700 3rd speed rpm

: 3.90...4.50 : 300 travel mm

4th speed rpm

: 1.30...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1335 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 73.0...75.0 Del.quantity

1000 : (71.0...77.0) : 3.50 cm3

Spread : (6.00)

1000

RATED SPEED

1st version

E02

Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring Speed rpm Rack travel in mm: 7.8 Testing: Speed : 100 rpm Minimum rack trave: 9.70 : 300 Speed rpm Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...600 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.70...11.80 3rd speed rpm : 1125 Rack travel in m: 11.40...11.50 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750
Del.quantity cm3/ : 68.0...70.0
1000 s: (66.0...72.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1340...1350 Speed

Speed rpm: 100
Del.quantity cm3/: 78.0...88.0
1000 s: (75.0...91.0)
Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm: 300
Rack travel in mm: 7.80...7.90
Del.quantity cm3/: 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3: 3.50
1000 s: (5.50)

Remarks:

E03

STARTING FUEL DELIVERY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 21 Test sheet Edition : 16.08.90 : 16.05.88 Replaces Test oil : ISO-4113 : 0 403 446 187 Combination no. Injection pump Pump designation : PES6MW100/720RS1129 : 0 413 406 121 EP type number Governor : RQV300...1300MW50-2 Governor design. : 0 420 083 124 Governer no. Customer-spec. information Customer : DB : OM 366 LA Engine : 150.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600 (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 1300 1st speed Rack travel in mm : 11.20...11.30 Del.quantity cm3/: 9.8...10.0 100 s: (9.6...10.2) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 5.5...5.6 Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1340 1st speed : 8.60...8.80 travel mm rpm : 1430 : 9.30...9.70 2nd speed travel mm 3rd speed rpm : 300 : 1.20...1.60 travel mm rpm : 700 4th speed travel mm : 3.80...4.40 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1340 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1300Aneroid pressure h: 1000 : 98.0...100.0 Del.quantity 1000 : (96.0...102.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 51...59 Testina: 1st rack travel in: 10.20 Speed rpm: 1340...1350 2nd rack travel in: 4.00 rpm : 1430...1460 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 5.5 Testing: rpm : 100 Speed Minimum rack trave: 7.50 rpm : 300 Speed Rack travel in mm : 5.50...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 CONSTANT REGULATION rpm : 320...530 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 400 Pressure : 9.90...10.00 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 9.50...9.60 2nd pressure hPa : 500 Rack travel in m: 10.80...11.10 3rd pressure hPa : 1000 Rack travel in m: 11.20...11.30 START CUT-OUT 1/min: 220 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

1st version 1mm rack travel less than

full load rack tr: 10.20 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Spread

Speed rpm : 300 Rack travel in mm : 5.50...5.60 Del.quantity cm3/ : 9.0...11.0 1000 s: (6.0...14.0)

cm3 : 3.50

1000 s: (5.00)

Remarks:

E05

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 6,0 D 85 : 16.08.90 Edition : 07.02.89 Replaces : ISO-4113 Test oil Combination no. : 0 403 446 191 Injection pump Pump designation : PES6MW100/720RS1144 EP type number : 0 413 406 138 Governor Governor design. : RQV300...1200MW48-5 : 0 420 083 140 Governer no. Customer-spec. information : MB-NFZ Customer : 0M366A : 116.0 1st version kW : 2400 inlet temp. °C : 38...42 : 1 417 413 047 Test nozzle holder : 0 681 343 009 assembly : 172...175 pressure, bar : 1 680 750 015 : 6.00x1.50x600 Insp. values in parentheses Set equal delivery quant. per values

Engine Rated speed TEST BENCH REQUIREMENTS Test oil Overflow valve Inlet press., bar: 1.50 **Opening** Test Lines Outside diameter x Wall thickness x Length mm (A) Injection pump setting values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 E06

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 10.80...10.90 Del.guantity cm3/: 7.7...7.9 100 s: (7.5...8.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 8.0...8.1 Del.quantity cm3/: 1.0...1.4 100 s: (0.9...1.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1250 1st speed : 7.30...7.50 : 1380 travel mm 2nd speed rom : : 8.50...8.90 travel mm 3rd speed : 500 rom : 2.70...3.30 travel mm : 300 4th speed rpm travel mm : 1.20...1.70 GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1330 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 : 77.0...79.0 Speed Del.quantity 1000 : (75.0...81.0) : 3.50 Spread cm3 : (6.00) 1000 RATED SPEED

1st version

Control Lever position degrees: 46...54

Testing:

1st rain travel in: 9.80

rpm : 1250...1260 Speed

2nd rack travel in: 4.00

Speed rpm : 1350...1380 4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 16...24

Setting point w/out bumper spring

rpm : 300 Rack travel in mm: 8.0

Testing:

: 100 Speed rpm Minimum rack trave: 9.80 rpm : 300 Speed

Rack travel in mm : 8.00...8.10

CONSTANT REGULATION

rpm : 330...500 Speed

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.80...10.90

2nd speed rpm : 700

Rack travel in m: 11.10...11.20

3rd speed rpm : 800

Rack travel in m: 10.90...11.10

START CUT-OUT

1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 700 Speed rpm

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1250...1260 Speed

STARTING FUEL DELIVERY

E07

rpm : 100 Speed

Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 300 Speed

Rack travel in mm: 8.00...8.10 Del.quantity cm3/: 10.0...14.0

1000 s: (9.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Note remarks

Test sheet : IHC 7,6 R22 Edition : 06.09.90 Replaces : 15.08.89 Test oil : ISO-4113

Combination no. : 0 403 446 192

Injection pump

Pump designation : PES6MW100/320RS1112

EP type number : 0 413 406 108

Governor

Governor design. : RQV350...1300MW72-2

Governer no. : 0 420 083 141

Customer—spec. information Customer : NAVISTAR

Engine : DT-466

1st version kW : 154.5 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar: 2.80

Test nozzle holder

assembly : 1 688 901 016

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,5

Test Lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.6...8.8

10C s: (8.4...9.0)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm: 350

Rack travel in mm: 6.4...6.5 Del.quantity cm3/: 1.9...2.3

100 s: (1.6...2.5)

Spread cm3 : 0.3 100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1350

travel mm : 8.30...8.50

2nd speed rpm : 1460

travel mm : 9.10...9.50

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 900

Del.quantity : 86.0...88.0 1000 : (84.0...90.0)

Spread cm3 : 3.5

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 45...50

Testing:

1st rack travel in: 9.00

rpm : 1360...1380 Speed

2nd rack travel in: 4.00

rpm : 1460...1470 Speed

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 10...18

Setting point w/out bumper spring

: 350 COM Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 9.00 rpm

Rack travel in mm : 6.40...6.50

CONSTANT REGULATION

: 300...450 Speed rpm

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 1300 Speed rom

Del.quantity cm3/: 88.0...92.0

1000 s: (86.0...94.0) cm3 : 5.0 1000 s: (7.0) Spread

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

rpm : 1360...1380 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.0...21.0

LOW IDLE

rpm : 350 Speed

Rack travel in mm : 6.40...6.50 Del.quantity cm3/: 19.0...23.0 1000 s: (16.5...25.5)

cm3 : 3.5 1000 s: (6.0) Spread

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

H09

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 R20 Edition : 20.07.90 : 19.12.88 Replaces : ISO-4113 Test oil : 0 403 446 194 Combination no. Injection pump Pump designation : PES6MW100/320RS1112 : 0 413 406 108 EP type number Governor Governor design. : RQV350...1300MW46-12 : 0 420 083 143 Governer no. Customer-spec. information : NAVISTAR Customer : DTA-466 Engine : 154.5 1st version kW : 2600 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 037 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 016 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,5 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm

(A) Injection pump setting values

Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Insp. values in parentheses

Prestroke mm : 4.00...4.10 : (3.95...4.15) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm: 800 Rack travel in mm : 10.80...10.90 Del.quantity cm3/: 10.3...10.5 100 s: (10.1...10.7) cm3 : 0.3Spread 100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.6 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 travel mm : 8.30...8.50 2nd speed rpm : 1460 : 9.10...9.50 travel mm rpm : 550 3rd speed : 3.10...3.70 travel mm rpm : 350 4th speed : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 800 : 103.0...105.0 Del.quantity 1000 : (101.0...107.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version

Control lever

position degrees: 44...49

Testing: 1st rack travel in: 9.80 Speed rpm : 1365...1385 2nd rack travel in: 4.00 Speed rpm : 1470...1480 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring : 350 man Rack travel in mm : 5.5 Testina: Speed rpm : 100 Minimum rack trave: 7.30 rpm : 350 Rack travel in mm : 5.50...5.60 CONSTANT REGULATION rpm : 360...450 Speed Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 man hPa : 170 Pressure : 10.40...10.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.10...10.20 2nd pressure hPa : 230 Rack travel in m: 10.60...10.90 3rd pressure hPa : 800 Rack travel in m: 10.80...10.90 START CUT-OUT 1/min: 180 (240) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 800 Speed rpm : 1200 Del.quantity cm3/ : 105.0...109.0 1000 s: (103.0...111.0)

cm3 : 5.00

1000 s: (7.0)

Speed rpm : 500 Del.quantity cm3/ : 87.0...89.0 1000 s: (85.0...91.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1365...1385 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 140.0...180.0 1000 s: (137.0...183.0) Rack travel in mm: 19.00...21.00 LOW IDLE Speed : 350 rpm Rack travel in mm: 5.50...5.60 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Spread

Aneroid pressure h: -

Note remarks

Test sheet : MB 6,0 D 40 Edition : 20.07.90 : 17.05.90 Replaces

: ISO-4113 Test oil

: 0 403 446 207 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RQ300/1300MW96 Governer no. : 0 420 082 032

Customer-spec. information Customer : MB-NFZ

: 0M366A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...8.0 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1425 1st speed

: 9.50...9.90 travel mm

rpm : 1350 2nd speed

: 7.80...8.00 travel mm

3rd speed rpm : 525

: 4.90...5.50 travel mm

4th speed rpm

: 300 : 2.10...2.50 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2 rpm : 1200

Rack travel in mm : 12.70...14.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 77.0...79.0 Del.quantity

1000 : (75.0...81.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 34...42 Testina: 1st rack travel in: 10.00 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 9...17 Setting point w/out bumper spring Speed rpm Rack travel in mm: 7.9 Testing: : 100 Speed rpm Minimum rack trave: 9.00 rpm : 300 Rack travel in mm : 7.80...8.00 TORQUE CONTROL Dimension a mm : 1.00 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 11.00...11.10 rpm : 800 2nd speed Rack travel in m: 11.80...12.00 3rd speed rpm : 585 Rack travel in m: 12.00...12.20 4th speed rpm : 1100 Rack travel in m: 11.10...11.30 START CUT-OUT Speed 1/min: 180 (200) FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed riom Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0) : 5.00 Spread cm3 1000 s: (7.) rpm : 585 Speed Del.quantity cm3/: 68.5...71.5 1000 s: (66.0...74.0) RACK STOP ADJUSTMENT

: 550

rpm

1st version 1mm rack travel less than full load rack tr: 10.00 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 7.80...8.00 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: :

Speed

BREAKAWAY

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 53 Test sheet Edition : 16.08.90 Replaces : 07.10.88 Test oil : ISO-4113 : 0 403 446 212 Combination no. Injection pump Pump designation: PES6MW100/720RS1131 EP type number : 0 413 406 123 Governor Governor design. : RQV300...1300MW68-1 : 0 420 083 169 Governer no. Customer-spec. information Customer : DB : OM 366 LA Engine 1st version kW : 150.0 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar Test lines : 1 680 750 015 Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

Rack travel in mm : 9.00...12.00

: 3.70...3.80

: (3.65...3.85)

per values

BEGINNING OF DELIVERY

Prestroke mm

Test pressure, bar: 30...32

BASIC SETTING 1st speed rpm : 1300Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) Spread cm3 : 0.3100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.4...6.6 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 9.20...9.60 travel mm : 1350 2nd speed rom : 8.10...8.30 travel mm : 450 3rd speed rpm : 3.00...3.60 : 300 travel mm 4th speed rpm : 1.20...1.60 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1350 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 1000 Aneroid Del.quantity 1900 : 97.0...99.0 : (95.0...101.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED

Firing order

Tolerance + - °

Phasing

: 1-5-3-6-2-4

: 0-60-120-180-240-300

: 0.50 (0.75)

1st version rpm : 500 Speed Del.quantity cm3/: 52.0...54.0 Control lever 1000 s: (50.0...56.0) position degrees: 49...57 Testina: 1st rack travel in: 11.40 **BREAKAWAY** rpm : 1340...1350 Speed 2nd rack travel in: 4.00 1st version Speed rpm : 1455...1485 1mm rack travel less than 4th rack travel in: 1600 rpm : 0.00...1.00full load rack tr: 11.40 Speed rpm : 1340...1350 Speed LOW IDLE 1 Control lever STARTING FUEL DELIVERY position degrees: 14...22 Setting point w/out bumper spring rpm : 300 rpm : 100 Speed Del.quantity cm3/: 83.0...93.0 Rack travel in mm: 6.5 1000 s: (80.0...96.0) Testing: rpm : 100 Speed LOW IDLE Minimum rack trave: 8.00 rpm : 300 rpm : 300 Speed Rack travel in mm : 6.40...6.60 Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Aneroid/Altitude cm3 : 3.50Spread Compensator Test 1000 s: (5.50) 1st version Remarks: Setting : 500 Speed rpm hPa : 170 Pressure : 11.00...11.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.70...10.80 2nd pressure hPa : 225 Rack travel in m: 12.10...12.40 3rd pressure hPa : 1000 Rack travel in m: 12.40...12.50 START CUT-OUT 1/min: 220 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 600 Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

:

Note remarks

: IHC 7,6 R25 : 06.09.90 : 17.05.90 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 446 213

Injection pump

Pump designation : PES6MW100/320RS1112

EP type number : 0 413 406 108

Governor

Governor design. : RQV350...1300MW72-4 Governor no. : 0 420 083 170

Customer—spec. information : NAVISTAR Customer

Engine : DT-466

1st version kW : 154.5 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 037

Inlet press., bar : 2.80

Test nozzle holder

: 1 688 901 016 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,5 diameter mm

: 1 680 750 008 Test lines

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 4.00...4.10

: (3.95...4.15)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 900 1st speed

Rack travel in mm : 10.50...10.60

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 350 2nd speed

Rack travel in mm : 5.5...5.6 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed : 9.10...9.50 travel mm

rpm : 1350 2nd speed

: 8.30...8.50 travel mm

3rd speed rpm

: 550 : 3.10...3.70 : 350 travel mm

4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 900 Speed rpm

: 99.0...101.0 Del.quantity

1000 : (97.0...103.0)

: 3.5 Spread cm3

1000 : (6.0)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testina:

1st rack travel in: 9.50

rpm : 1365...1385 Speed

2nd rack travel in: 4.00

Speed rpm : 1470...1480 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever

position degrees: 9...17

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.5

Testing:

Speed : 100 rpm

Minimum rack trave: 7.30 : 350 Speed rom

Rack travel in mm: 5.5...5.6

CONSTANT REGULATION

rpm : 390...480 Speed

START CUT-OUT

1/min: 180 (240) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

: 1300 Speed rpm

Del.quantity cm3/: 101.0...105.0

1000 s: (99.0...107.0)

cm3 : 5.0Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

rpm : 1365...1385 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 140...180

1000 s: (137...183)

Rack travel in mm : 19.0...21.0

LOW IDLE

Speed rpm: 350 Rack travel in mm: 5.5...5.6

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.5

1000 s: (5.5)

Remarks:

Perform pump setting only with IH hose with restriction of 1.2 mm diameter.

Before checking sleeve position, first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

: MB 6,0 D 61 Test sheet : 16.08.90 Edition Replaces : 24.02.89

Test oil : ISO-4113

: 0 403 446 215 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governor

Governor design. : RQV300...1300MW50-5

: 0 420 083 187 Governer no.

Customer-spec. information

Customer : DB

: OM 366 LA Engine

: 146.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 715 015 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.75)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 8.9...9.1

100 s: (8.7...9.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.1

100 s: (0.4...1.3) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.50...9.90 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm

rpm : 500 3rd speed

: 2.70...3.30 travel mm

rpm : 300 4th speed

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION

Control-Lever position

Degree: -1 rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300Aneroid pressure h: 1000

: 89.0...91.0 10<u>0</u>0 : (87.0...93.0) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

Speed rpm : 500 Del.quantity cm3/ : 51.0...53.0 1000 s: (49.0...55.0) 1st version Control lever position degrees: 51...59 Testing: 1st rack travel in: 11.00 BREAKAWAY rpm : 1340...1350 Speed 2nd rack travel in: 4.00 1st version Speed rpm : 1440...1470 4th rack travel in: 1550 1mm rack travel less than rpm : 0.00...1.00full load rack tr: 11.00 Speed Speed rpm : 1340...1350 LOW IDLE 1 STARTING FUEL DELIVERY Control Lever position degrees: 14...22 Setting point w/out bumper spring rpm : 300 Speed : 100 rpm Del.quantity cm3/: 83.0...93.0 Rack travel in mm: 6.1 1000 s: (80.0...96.0) Testing: Speed : 100 LOW IDLE CDM Minimum rack trave: 7.80 : 300 Speed Speed rpm : 300 rpm Rack travel in mm : 6.00...6.20 Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 7.0...11.0 Aneroid/Altitude 1000 s: (4.5...13.5) cm3 : 3.50 Compensator Test Spread 1000 s: (5.50) Remarks: 1st version Setting . Speed : 500 rpm hPa : 300 Pressure Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.60...10.70 2nd pressure hPa : 230 Rack travel in m: 10.90...11.20 3rd pressure hPa : 1000 Rack travel in m: 12.00...12.10 START CUT-OUT 1/min: 200 (230) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 600 Speed rpm Del.quantity cm3/: 74.0...77.0 1000 s: (71.5...79.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -

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BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 59 Test sheet Edition : 16.08.90 : 07.02.89 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 219 Injection pump Pump designation : PES6MW100/720RS1120 : 0 413 406 112 EP type number Governor Governor design. : RQV300...1300MW59-1 : 0 420 083 181 Governer no. Customer-spec. information : MB-NFZ Customer : OM366LA Engine 1st version kW : 141.7 Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY

: 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasina Tolerance + - ° : 0.50 (0.75) BASIC SETTING 1st speed rpm : 1300Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 8.6...8.8 100 s: (8.4...9.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 300.0 2nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 9.50...9.90 travel mm rpm : 1350 2nd speed : 8.50...8.70 travel mm 3rd speed : 500 rpm : 2.70...3.30 travel mm : 300 4th speed rpm : 0.70...1.10 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1325 Rack travel in mm : 15.20...17.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1300 Speed Aneroid pressure h: 1000 : 86.0...88.0 Del.quantity 1000 : (84.0...90.0) cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

Prestroke mm

Test pressure, bar: 30...32

Rack travel in mm : 9.00...12.00

: 3.50...3.60

: (3.45...3.65)

1st version Control lever position degrees: 51..59 Testing: 1st rack travel in: 11.10 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 rpm : 1450...1480 Speed 4th rack travel in: 1530 rpm : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 14...22 Setting point w/out bumper spring rpm : 300° Rack travel in mm: 6.1 Testing: Speed rpm : 100 Minimum rack trave: 7.60 rpm : 300 Rack travel in mm : 6.00...6.20 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : 310 Pressure : 11.80...11.90 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 11.00...11.10 2nd pressure hPa : 280 Rack travel in m: 11.20...11.50 3rd pressure hPa : 1000 Rack travel in m: 12.10...12.20 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm: 750
Del.quantity cm3/: 75.5...78.5
1000 s: (73.0...81.0)

Spread cm3:5.00
1000 s: (7.0)
Aneroid pressure h: Speed rpm:500
Del.quantity cm3/:47.0...49.0
1000 s: (45.0...51.0)

BREAKAWAY
1st version
1mm rack travel less than

full load rack tr: 11.10 Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 83.0...93.0 1000 s: (80.0...96.0)

LOW IDLE

Speed rpm : 300
Rack travel in mm : 6.00...6.20
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)
Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 6.0 D 64 Edition : 16.08.90

Replaces :

Test oil : ISO-4113

Combination no. : 0 403 446 221

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RQV300...1200MW69-2

Governer no. : 0 420 083 185

Customer—spec. information Customer : MB-NFZ

Engine : OM366A

1st version kW : 116.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.7...7.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5) Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm: 1310

travel mm : 9.20...9.80 2nd speed rpm : 1250

travel mm : 8.40...8.60 3rd speed rpm : 500

rd speed rpm : 500 travel mm : 2.90...3.50

4th speed rpm: 300

travel mm : 1.00...1.40

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

Speed rpm: 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1200

Del.quantity : 77.0...79.0

1000 : (75.0...81.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 50...58 Testing: 1st rack travel in: 10.00 Speed rpm : 1240...1250 2nd rack travel in: 4.00 Speed rpm : 1285...1315 4th rack travel in: 1400 rom : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 18...26 Setting point w/out bumper spring speed rpm : 300 Rack travel in mm : 7.8 Testing: rpm : 100 Speed Minimum rack trave: 9.50 rpm : 300 Speed Rack travel in mm : 7.70...7.90 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 11.00...11.10 2nd speed rpm : 750 Rack travel in m: 11.70...11.90 3rd speed rpm : 600 Rack travel in m: 12.00...12.20 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 70.5...73.5 1000 s: (68.0...76.0) cm3 : 5.00Spread 1000 s: (7.0) **BREAKAWAY** 1st version

1mm rack travel less than

full load rack tr: 10.00

Speed rpm : 1240...1250

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 300 Rack travel in mm : 7.70...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

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Note remarks

: MB 6,0 D 67 : 16.08.90 Test sheet Edition Replaces : 14.04.89

Test oil : ISO-4113

Combination no. : 0 403 446 223

Injection pump

Pump designation : PES6MW100/720RS1172

: 0 413 406 155 EP type number

Governor

Governor design. : RGV300...1500MW67-1 Governer no. : 0 420 083 188

Customer-spec. information Customer : MB-NFZ

Engine : DM 366 LA

1st version kW : 177.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85) Rack travel in mm : 19.00...21.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 14.40...14.50

Del.guantity cm3/: 10.4...10.6

100 s: (10.2...10.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 9.70...10.10 travel mm

rpm : 1360 2nd speed

: 8.30...8.50 travel mm

3rd speed : 600 rpm

: 3.50...4.10 travel mm

; 300 4th speed rpm

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

beed rpm : 1300 Aneroid pressure h: 1000

: 104.0...106.0 Del.quantity 1000 : (102.0...108.0)

: 3.50 Spread cm3

> 1000 : (6.00)

RATED SPEED

E24

1st version Control Lever position degrees: 66...74 Testina: 1st rack travel in: 13.40 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1430...1460 4th rack travel in: 1500 Speed rpm : 0.00...1.00LOW IDLE 1 Control Lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.9 Testing: : 100 Speed rom Minimum rack trave: 7.60 rpm : 300 Speed Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 14.40...14.50 rpm : 850 2nd speed Rack travel in m: 15.30...15.40 3rd speed rpm : 1100 Rack travel in m: 14.70...14.90 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : Rack travel mm : 11.70...11.80 Measurement 1/min: 500 Speed 1st pressure hPa : 550 Rack travel in m: 12.70...12.80 2nd pressure hPa : 700 Rack travel in m: 14.00...14.20 3rd pressure hPa : 1000 Pack tra/el in m: 15.30...15.40 START CUT OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 Speed rpm : 850 Del.quantity cm3/: 107.0...110.0 1000 s: (104.5...112.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 42.0...44.0 1000 s: (40.0...46.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.00) Remarks:

Note remarks

: MB 6,0 D 70 Test sheet : 16.08.90 Edition

Replaces

: ISO-4113 Test oil

: 0 403 446 224 Combination no.

Injection pump

Pump designation: PES6MW100/720RS1172

: 0 413 406 155 EP type number

Governor

Governor design.: RQV300...1300MW67-2

: 0 420 083 189 Governer no.

Customer-spec. information Customer : MB-NFZ

: OM 366 LA Engine

1st version kW : 170.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina .

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 14.70...14.80

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.1...6.3 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1460

: 9.70...10.10 travel mm

rpm : 1360 2nd speed

: 8.30...8.50 travel mm

3rd speed : 600 rpm

3.50...4.10 travel mm

: 300 4th speed rpm

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

Aneroid pressure h: 1000

Del.quantity : 105.0...107.0

1000 : (103.0...109.0)

Spread : 3.50 cm3

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 60...68 Testing: 1st rack travel in: 13.70 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1445...1475 Speed 4th rack travel in: 1500 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 16...24 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.2 Testing: rpm : 100 Speed Minimum rack trave: 8.00 rpm : 300 Speed Rack travel in mm : 6.10...6.30 Rack travel in mm : 2.00 : 415...475 Speed rom Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa:-Pressure : 11.90...12.00 Rack travel mm Measurement Speed $1/\min : 500$ 1st pressure hPa : 450 Rack travel in m: 12.60...12.70 2nd pressure hPa : 550 Rack travel in m: 13.50...13.80

3rd pressure hPa : 1000

Rack travel in m: 14.70...14.80 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

rpm : 750

Del.quantity cm3/: 92.0...95.0 1000 s: (89.5...97.5)

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 42.0...44.0 1000 s: (40.0...46.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 13.70 rpm : 1340...1350

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed

: 300 Speed rpm Rack travel in mm : 6.10...6.30 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 1000 s: (5.00) Spread

Remarks:

Speed

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : IHC 7,6 X Edition : 16.08.90 Replaces Test oil : ISO-4113 : 0 403 446 239 Combination no. Injection pump Pump designation : PES6MW100/32DRS1189 : 0 413 406 177 EP type number Governor : RQV350...1200MW46-21 Governor design. : 0 420 083 201 Governer no. : 1815503c91 Cust. part no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine 1st version kW : 186.0 : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Prestroke mm Rack travel in mm : 9.00...12.00 Firing order Phasing Phasing Tolerance + - ° Time to cyl. no. : 1 BASIC SETTING 1st speed Rack travel in mm : 14.00...14.10 Del.quantity cm3/: 15.2...15.4 Spread 2nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.6...2.0 Spread (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed travel mm 2nd speed travel mm 3rd speed travel mm 4th speed travel mm "JLL LOAD DELIV. AT FULL LOAD STOP 1st version Speed Aneroid pressure h: 900 (A) Injection pump setting values Del.quantity Insp. values in parentheses Spread RATED SPEED

Test pressure, bar: 30...32

: 3.25...3.35

: 0.50 (0.75)

100 s: (15.0...15.6)

rpm: 800

cm3 : 0.3

100 s: (0.6)

rpm : 350.0

cm3 : 0.3

100 s: (0.5)

rpm : 1350

rpm : 1460

rpm : 550

rpm : 800

rpm

cm3

1000

: 350

100 s: (1.3...2.2)

: 8.30...8.50

9.10...9.50

: 3.10...3.70

: 1.30...1.70

: 152.0...154.0

1000 : (150.0...156.0)

: 3.50

: (6.00)

: (3.20...3.40)

: 1-5-3-6-2-4

: 0-60-120-180-240-300

1st version Control lever

position degrees: 45...53

Testina:

1st rack travel in: 13.00

rpm : 1280...1300 Speed

2nd rack travel in: 4.00

: 1435...1445 Speed rom

4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 8...16

Setting point w/out bumper spring

Speed rpm Rack travel in mm: 5.4

Testina:

Speed : 100 rom Minimum rack trave: 9.00 : 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Settina

: 500 Speed mar hPa : Pressure

Rack travel mm : 8.90...9.00

Measurement

1/min: 500 Speed

1st pressure hPa : 250

Rack travel in m: 10.20...10.30 2nd pressure hPa : 550

Rack travel in m: 12.50...12.90

3rd pressure hPa : 900

Rack travel in m: 14.00...14.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1200 Del.quantity cm3/: 143.0...147.0

1000 s: (141.0...149.0)

cm3 : 6.50 1000 s: (7.0) Spread

Aneroid pressure h: rpm : 500 Speed

Del.quantity cm3/: 62.0...64.0

1000 s: (60.0...66.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00

rpm : 1280...1300 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 14.50...15.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: IHC #1815503C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter.

Note remarks

: IHC 7,6 W 1 Test sheet Edition : 10.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 241

Injection pump

Pump designation : PES6MW100/320RS1198

EP type number : 0 413 406 188

Governor

Governor design. : RQV350...1200MW46-23

: 0 420 083 203 Governer no.

: 1815518091 Cust. part no.

Customer-spec. information Customer : NAVISTAR

: DT -466 Engine

1st version kW : 157.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm

: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1-5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Phasina

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 800 1st speed

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 13.0...13.2

100 s: (12.8...13.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1460 1st speed

: 9.10...9.50 travel mm

rpm : 13502nd speed

travel mm : 8.30...8.50

rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed rpm

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800 Aneroid pressure h: 900

: 130.0...132.0 Del.quantity

1000 : (128.0...134.0) cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 11.00

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

Speed rpm : 1405...1415

4th rack travel in: 1500

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 20...28

Setting point w/out bumper spring

Speed : 350 man Rack travel in mm: 5.4

Testing:

Speed : 100 rom

Minimum rack trave: 9.00 Speed rpm : 350

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : -Pressure

: 9.00...9.10 Rack travel mm

Measurement

Speed $1/\min : 500$

1st pressure hPa : 220

Rack travel in m: 9.70...9.80

2nd pressure hPa : 500

Rack travel in m: 11.30...11.70

3rd pressure hPa : 900

Rack travel in m: 12.00...12.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 1200 Speed

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 74.0...76.0

1000 s: (72.0...78.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: IHC #1815518C91

Only perform pump setting with original

overflow valve without IH hose and

restrictor 1.2 mm diameter. Before checking sleeve position,

first adjust latching.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Test pressure, bar: 30...32 BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Note remarks : IHC 7.6 W 4 Test sheet : 31.08.90 : 1-5-3-6-2-4 Firing order Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 : 0 403 446 242 Combination no. Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 Time to cyl. no. : 1 EP type number Governor Governor design. : RQV350...1200MW46-24 BASIC SETTING : 0 420 083 204 Governer no. 1st speed rpm: 800 : 1815515c91 Cust. part no. Rack travel in mm : 12.00...12.10 Customer-spec. information : NAVISTAR Del.quantity cm3/: 13.0...13.2 Customer 100 s: (12.8...13.4) : DT 466 Engine : 157.0 Spread cm3 : 0.31st version kW : 2400 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0
Rack travel in mm : 5.3...5.5
Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.3...2.2) Overflow valve Spread cm3 : 0.3: 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.80 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1450 1st speed : 9.80...10.20 travel mm **Opening** : 1250 : 207...210 2nd speed pressure, bar rpm : 7.90...8.10 travel mm : 550 : 3.10...3.70 : 350 3rd speed Orifice plate rpm diameter mm : 0,6 travel mm 4th speed rpm : 1.30...1.70 travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter 1st version x Wall thickness rpm : 800 : 6.00X2.00X600 x Length mm Speed Aneroid pressure h: 900 : 130.0...132.0 Del.quantity (A) Injection pump setting values 1000 : (128.0...134.0) Insp. values in parentheses Set equal delivery quant. Spread cm3 : 3.50 1000 : (6.00) per values

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 52...60

Testina:

1st rack travel in: 11.00

Speed rpm : 1270...1290 2nd rack travel in: 4.00

Speed rpm : 1405...1415

4th rack travel in: 1550

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 20...28 Setting point w/out bumper spring

: 350 Speed MON Rack travel in mm: 5.4

Testina:

Speed : 100 man Minimum rack trave: 9.00 : 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : -Pressure

: 9.70...9.80 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 215

Rack travel in m: 10.30...10.40

2nd pressure hPa : 425

Rack travel in m: 11.40...11.80

3rd pressure hPa : 900

Rack travel in m: 12.00...12.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 1200 Speed

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 86.0...88.0 1000 s: (84.0...90.0)

RACK STOP ADJUSTMENT

Speed : 100 rom

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1270...1290 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 130.0...170.0

1000 s: (125.0...175.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm: 350
Rack travel in mm: 5.30...5.50
Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1815515C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.25...3.35 : (3.20...3.40) Note remarks Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Test sheet : IHC 7,6 W : 16.08.90 Edition Replaces Test oil : ISO-4113 : 0-60-120-180-240-300 Combination no. : 0 403 446 243 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1198 EP type number : 0 413 406 188 BASIC SETTING Governor rpm: 800 Governor design. : RQV350...1200MW46-25 1st speed : 0 420 083 205 Governer no. Rack travel in mm : 11.50...11.60 : 1815519091 Cust. part no. Del.quantity cm3/: 12.2...12.4 Customer-spec. information 100 s: (12.0...12.6) Customer : NAVISTAR : DTA-466 Spread cm3 : 0.3Engine : 145.0 100 s: (0.6) 1st version kW : 2400 Rated speed 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 TEST BENCH REQUIREMENTS Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.3100 s: (0.5) Overflow valve : 2 417 413 038 (B) Setting of injection pump with governor Inlet press., bar: 2.80 GUIDE SLEEVE TRAVEL rpm : 1450 Test nozzle holder 1st speed : 1 688 901 101 : 9.80...10.20 assembly travel mm 2nd speed rpm : 1250 : 7.90...8.10 travel mm Opening rpm : 550 : 3.10...3.70 : 207...210 3rd speed pressure, bar travel mm 4th speed rpm : 350 Orifice plate diameter mm : 0,6 travel mm : 1.30...1.70 FULL LOAD DELIV. AT FULL LOAD STOP Test lines : 1 680 750 008 1st version Outside diameter Speed rpm : 800 x Wall thickness Aneroid pressure h: 900 x Length mm : 6.00x2.00x600 Del.quantity : 122.0...124.0 1000 : (120.0...126.0) : 3.50 (A) Injection pump setting values Spread cm3 1000 : (6.00) Insp. values in parentheses Set equal delivery quant. RATED SPEED per values _ 1st version BEGINNING OF DELIVERY

F06

Control lever

position degrees: 48...56

Testing:

1st rack travel in: 10.50

rpm : 1265...1285 Speed

2nd rack travel in: 4.00

Speed rpm : 1385...1395 4th rack travel in: 1550

rom : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 16...24

Setting point w/out bumper spring

rom : 350 Speed Rack travel in mm: 5.4

Testing:

: 100 Speed rpm

Minimum rack trave: 9.00

: 350 rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

: 800 Speed rpm hPa : 210 Pressure

Rack travel mm : 9.40...9.50

Measurement

1/min: 800 Speed

1st pressure hPa : -

Rack travel in m: 8.70...8.80

2nd pressure hPa : 460 Rack travel in m: 10.70...11.00 3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 Speed rpm

Del.quantity cm3/: 117.0...121.0 1000 s: (115.0...123.0)

Spread cm3 : 6.50

1000 s: (7.0)

Aneroid pressure h: -

rpm : 800 Speed

Del.quantity cm3/: 75.0...77.0 1000 s: (73.0...79.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1265...1285 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

: IHC #1815519C91

In unlatched condition, do not operate greater than n = 500 1/min

Only perform pump setting with original overflow valve without IH hose and

restrictor 1.2 mm diameter. Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7.6 X 2 : 31.08.90 Test sheet Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 446 244 Injection pump Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Governor Governor design. : RQV350...1200MW46-26 : 0 420 083 206 Governer no. : 1815520c91 Cust. part no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine : 201.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly Opening. pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Test pressure, bar: 30...32 : 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 14.10...14.20 Del.quantity cm3/: 14.6...14.8 100 s: (14.4...15.0) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 8.30...8.50 travel mm 2nd speed rpm : 1460 : 9.10...9.50 travel mm : 550 : 3.10...3.70 : 350 3rd speed man travel mm 4th speed rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1200 Speed Aneroid pressure h: 1200 Del.quantity : 146.5...148.5 1000 : (144.5...150.5) : 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

per values __

1st version Control lever position degrees: 41...49 Testing: 1st rack travel in: 13.10 Speed rpm: 1270...1290 2nd rack travel in: 4.00 Speed rpm : 1430...1440 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control Lever position degrees: 8...16 Setting point w/out bumper spring rpm Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 9.00 Speed rpm : 350 Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL : 0.40 Dimension a mm Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.10...14.20 rpm : 800 2nd speed Rack travel in m: 14.50...14.60 rpm : 1050 3rd speed Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom Pressure hPa : -: 9.00...9.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 275 Rack travel in m: 10.40...10.50 2nd pressure hPa : 585 Rack travel in m: 12.90...13.20 3rd pressure hPa : 1200 Rack travel in m: 14.50...14.60

1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 800 Speed LDW Del.quantity cm3/: 160.0...164.0 1000 s: (158.0...166.0) cm3 : 6.50 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 61.5...63.5 1000 s: (59.5...65.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1270...1290 Speed STARTING FUEL DELIVERY rpm : 100 Del.quantity cm3/: 150.0...190.0 1000 s: (147.0...193.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: IHC #1815520C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

START CUT-OUT

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.25...3.35 : (3.20...3.40) Note remarks Prestroke mm Rack travel in mm : 9.00...12.00 Test sheet : IHC 7,7 A : 10.08.90 : 1-5-3-6-2-4 Firing order Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 446 245 : 0-60-120-180-240-300 Phasina Phasing Tolerance + - ° : 0.50 (0.75)Injection pump Pump designation : PES6MW100/320RS1204 EP type number : 0 413 406 192 Time to cyl. no. : 1 Governor Governor design. : RQV350...1200MW46-27 BASIC SETTING : 0 420 083 207 Governer no. 1st speed rpm: 800 Cust. part no. : 1815516091 Rack travel in mm : 10.80...10.90 Customer-spec. information Del.quantity cm3/: 11.2...11.4 Customer : NAVISTAR : DTA-360 100 s: (11.0...11.6) Engine : 138.0 1st version kW Spread cm3 : 0.3Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.02nd speed Rack travel in mm: 5.3...5.5 Test oil : 38...42 Del.quantity cm3/: 1.6...2.0 inlet temp. °C 100 s: (1.3...2.2) cm3 : 0.3 Overflow valve Spread : 2 417 413 038 100 s: (0.5) Inlet press., bar: 2.80 (B) Setting of injection pump with governor Test nozzle holder assembly : 1 688 901 101 GUIDE SLEEVE TRAVEL rpm : 1460 1st speed : 9.10...9.50 rpm : 1350 Openina travel mm : 207...210 pressure, bar 2nd speed : 8.30...8.50 travel mm rpm : 550 Orifice plate 3rd speed : 3.10...3.70 rpm : 350 : 0,6 travel mm diameter mm 4th speed travel mm : 1.30...1.70 : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00X2.00X600 rpm : 800 x Lenath mm Speed Aneroid pressure h: 900 : 112.0...114.0 (A) Injection pump setting values Del.quantity 1000 : (110.0...116.0) Insp. values in parentheses : 3.50 Set equal delivery quant. cm3 Spread 1000 : (6.00) per values

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 43...51

Testina:

1st rack travel in: 9.80

rpm : 1415...1435 Speed

2nd rack travel in: 4.00

rpm : 1505...1515 Speed

4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1 Control Lever

position degrees: 8...16

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 5.4

Testina:

: 100 Speed rpm Minimum rack trave: 9.00

rpm : 350

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rpm : 300...450 Speed

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom

Pressure hPa : -

: 8.80...8.90 Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : 220

Rack travel in m: 9.40...9.50

2nd pressure hPa : 400

Rack travel in m: 10.10...10.50

3rd pressure hPa : 900

Rack travel in m: 10.80...10.90

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 Speed rpm : 1350 Del.quantity cm3/: 109.0...111.0 1000 s: (107.0...113.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 71.0...73.0 1000 s: (69.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1415...1435 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

Speed : 350 rom

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0

Spread

Remarks:

: IHC #1815516C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not

operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

Note remarks

Test sheet : MB 6,0 0 83 : 16.08.90 Edition : 17.05.90 Replaces : ISO-4113 Test oil

: 0 403 446 246 Combination no.

Injection pump

Pump designation: PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design.: RQV300...1300MW50-6

: 0 420 083 209 Governer no.

Customer-spec. information : MB-NF7 Customer

: 0M366A Engine

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 a'ssembly

Ocening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 11.00...11.10

Del.quantity cm3/: 7.7...7.9

100 s: (7.5...8.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 8.0...8.2 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed

rpm : 1430 : 9.30...9.70 travel mm 2nd speed rpm : 1340

: 8.50...8.70 travel mm : 500 3rd speed rpm

: 2.70...3.30 travel mm

: 300 4th speed rpm

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1300

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

Del.quantity : (75.0...81.0)

: 3.50 cm3 Spread 1000 : (6.00)

RATED SPEED

F12

1st version START CUT-OUT Control lever position degrees: 50...58 Speed 1/min : 230 (250) Setting point: : 1300 FUEL DELIVERY CHARACTERISTICS Speed rom Rack travel in mm: 16.5 1st version Testina: 1st rack travel in: 10.00 Aneroid pressure h: 1000 Speed rpm : 800 Del.quantity cm3/ : 76.0...78.0 1000 s: (74.0...80.0) rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1425...1455 Speed 4th rack travel in: 1550 cm3 : 5.00Spread 1000 s: (7.0) Speed rpm : 0.00...1.00Aneroid pressure h: 1000 LOW IDLE 1 rpm : 585 Speed Del.quantity cm3/: 68.5...71.5 1000 s: (66.0...74.0) Control Lever position degrees: 20...28 Setting point w/out bumper spring Aneroid pressure h: rpm : 500 rpm : 300 Speed Del.quantity cm3/: 39.0...41.0 Rack travel in mm: 8.1 1000 s: (37.0...43.0) Testing: Speed : 100 rom Minimum rack trave: 9.20 **BREAKAWAY** Speed rpm : 300 Rack travel in mm : 8.00...8.20 1st version 1mm rack travel less than TORQUE CONTROL Dimension a mm : 1.20 full load rack tr: 10.00 rpm : 1340...1350 Torque control curve - 1st version Speed 1st speed rpm : 1300 Rack travel in m: 10.90...11.00 STARTING FUEL DELIVERY rpm : 800 2nd speed Rack travel in m: 11.80...12.00 : 585 3rd speed rpm Speed rom : 100 Del.quantity cm3/: 78.0...88.0 Rack travel in m: 12.00...12.20 rpm : 1100 1000 s: (75.0...91.0) 4th speed Rack travel in m: 11.10...11.30 LOW IDLE Aneroid/Altitude Speed rpm : 300 Rack travel in mm : 8.00...8.20 Compensator Test Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) 1st version cm3 : 3.50Setting Spread : 500 1000 s: (5.50) Speed man Pressure hPa : -Rack travel mm : 10.50...10.60 Remarks: Measurement 1/min: 500 Speed 1st pressure hPa : 180 Rack travel in m: 10.90...11.00 2nd pressure hPa : 290 Rack travel in m: 11.70...12.00 3rd pressure hPa : 1000

Rack travel in m: 12.00...12.20

Note remarks

Test sheet Edition

: RVI 6,2 F : 29.06.90

Replaces

Test oil

: ISO-4113

Combination no.

: 0 403 446 251

Injection pump

Pump designation : PES6MW100/320RS1202

EP type number

: 0 413 406 187

Governor

Governor design. : RQ750MW112

Governer no.

: 0 420 082 042

Customer—spec. information Customer

: RVI

Engine

: LDR 10

1st version kW

: 100.0

Rated speed

: 1500

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C

: 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

assembly

: 0 681 343 009

Openina .

pressure, bar

: 172...175

Test lines

: 1 680 750 008

Outside diameter

x Wall thickness

x Length mm

: 6.00x2.00x600

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.00...3.10

: (2.95...3.15)

Rack travel in mm : 9.00...12.00

F14

Firing order

: 1-5-3-6-2-4

Phasing

: 0-60-120-180-240-300

Tolerance + - °

: 0.50 (0.75)

BASIC SETTING

1st speed

rpm: 700

Rack travel in mm : 14.50...14.60

Del.quantity cm3/: 13.3...13.5

100 s: (13.1...13.7)

Spread

cm3 : 0.3

100 s: (0.6)

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Spread

rpm : 700

Del.quantity

: 133.5...135.5 1000 : (131.5...137.5)

cm3

: 3.50

1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 29...35

Testing:

1st rack travel in: 13.50

rpm : 750...755 Speed

2nd rack travel in: 4.00

rpm : 795...805 Speed

4th rack travel in: 825 Speed

rpm : 0.00...1.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.50

Speed

rpm : 750...755

STARTING FUEL DELIVERY

Speed

rpm

: 100

Del.quantity cm3/: 100.0...110.0

1000 s: (97.0...113.0)

Rack travel in mm : 19.00...21.00

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 Prestroke mm : 3.25...3.35 : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks : IHC 7,6 X 3 Test sheet : 16.08.90 Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 446 254 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/320RS1189 EP type number : 0 413 406 177 Time to cyl. no. : 1 Governor Governor design. : RQV350...1200MW46-29 BASIC SETTING : 0 420 083 217 Governer no. 1st speed rpm: 800 : 1816730c91 Cust. part no. Rack travel in mm : 14.00...14.10 Customer-spec. information Del.quantity cm3/: 15.2...15.4 Customer : NAVISTAR 100 s: (15.0...15.6) : DTA-466 Engine 1st version kW : 186.0 Spread cm3 : 0.3Rated speed : 2400 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 Test oil inlet temp. °C : 38...42 100 s: (1.3...2.2) Overflow valve Spread cm3 : 0.3: 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.80 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1350 1st speed : 8.30...8.50 Opening travel mm : 207...210 rpm : 1460 2nd speed pressure, bar : 9.10...9.50 travel mm : 550 : 3.10...3.70 3rd speed Orifice plate rpm diameter mm : 0,6 travel mm : 350 : 1.30...1.70 4th speed rpm travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version rpm : 800 : 6.00x2.00x600 Speed x Length mm Aneroid pressure h: 1200 : 152.0...154.0 (A) Injection pump setting values Del.quantity 1000 : (150.0...156.0) cm3 : 3.50 Insp. values in parentheses Set equal delivery quant. Spread per values 1000 : (6.00)

RATED SPEED

BEGINNING OF DELIVERY

1st version Control Lever position degrees: 54...62 Testing: 1st rack travel in: 13.00 Speed rpm : 1280...1300 2nd rack travel in: 4.00

rpm : 1435...1445 Speed 4th rack travel in: 1550

rpm : 0.00...1.00Speed

LOW IDLE 1 Control lever

position degrees: 18...26 Setting point w/out bumper spring

rpm Rack travel in mm: 5.4

Testina:

Speed rpm Minimum rack trave: 9.00 rpm : 350 Speed

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : -

: 9.80...9.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 290 Rack travel in m: 10.80...10.90

2nd pressure hPa : 750

Rack travel in m: 12.80...13.20

3rd pressure hPa : 1200

Rack travel in m: 14.00...14.10

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 rpm : 1200 Speed

Del.quantity cm3/: 140.0...144.0 1000 s: (138.0...146.0)

cm3 : 6.50Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 73.5...75.5 1000 s: (71.5...75.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.00

rpm : 1280...1300 Speed

STARTING FUEL DELIVERY

Speed rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

Rack travel in mm : 14.50...15.50

LOW IDLE

: 350 Speed rpm

Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: IHC #1816730C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Note remarks

Test sheet : IHC 7.6 X 1

: 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 446 255

Injection pump

Pump designation : PES6MW100/320RS1189

: 0 413 406 177 EP type number

Governor

Governor design. : RQV350...1200MW46-30

: 0 420 083 218 Governer no.

: 1816731c91 Cust. part no.

Customer—spec. information : NAVISTAR Customer

: DTA-466 Engine

1st version kW : 201.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 038

Inlet press., bar: 2.80

Test nozzle holder

: 1 688 901 101 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 008 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.25...3.35 Prestroke mm

: (3.20...3.40)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 14.10...14.20

Del.quantity cm3/: 14.6...14.8

100 s: (14.4...15.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

: 8.30...8.50 travel mm

rpm : 1460 2nd speed

: 9.10...9.50 travel mm

rpm : 550 3rd speed

: 3.10...3.70 travel mm

: 350 4th speed rom

: 1.30...1.70 travel mm

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed Aneroid pressure h: 1200

: 146.5...148.5 1000 : (144.5...150.5) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 41...49 Testing: 1st rack travel in: 13.10 rpm : 1270...1290 Speed 2nd rack travel in: 4.00 rpm : 1430...1440 Speed 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 8...16 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 9.00 rpm : 350 Speed Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed TORQUE CONTROL Dimension a mm : 0.40 Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 14.10...14.20 : 800 rpm 2nd speed Rack travel in m: 14.50...14.60 : 1050 3rd speed rpm Rack travel in m: 14.30...14.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 9.80...9.90 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 260 Rack travel in m: 11.00...11.10 2nd pressure hPa : 650 Rack travel in m: 13.20...13.50 3rd pressure hPa : 1200 Rack travel in m: 14.50...14.60 START CUT-OUT

1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 rpm : 800 Speed Del.quantity cm3/: 160.0...164.0 1000 s: (158.0...166.0) cm3 : 6.50Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/: 83.5...85.5 1000 s: (81.5...87.5) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.10 rpm : 1270...1290 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 150.0...190.0 1000 s: (147.0...193.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

: IHC #1816731C91

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 6,9 D 89 : 16.08.90 Test sheet Edition : 01.06.90 Replaces Test oil : ISO-4113

: 0 403 446 257 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design: RQV300...1300MW50-7

: 0 420 083 221 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : 0M366A

: 125.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 10.90...11.00

Del.quantity cm3/: 7.2...7.4

100 s: (7.0...7.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

Spread cm3 : 0.3100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1350 1st speed

travel mm : 8.50...8.70 rpm : 1450 2nd speed travel mm 9.50...9.90

500 3rd speed rpm 2.70...3.30 travel mm

: 300 4th speed rpm

: 1.20...1.70 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 900

Del.quantity : (2.0....76.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

1st version Control lever position degrees: 52...60 Testing: 1st rack travel in: 9.90 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1425...1455 4th rack travel in: 1550 rpm : 0.00...1.00 Speed LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 7.8 Testing: : 100 Speed rpm Minimum rack trave: 9.30 : 300 rpm Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...500 Speed TORQUE CONTROL Dimension a mm : 1.00 Torque control curve - 1st version 1st speed rpm : 1300 Rack travel in m: 10.90...11.00 2nd speed rpm : 800 Rack travel in m: 11.60...11.80
3rd speed rpm : 585
Rack travel in m: 11.80...12.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 : 8.50...8.60 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 300
Rack travel in m: 10.00...10.10
2nd pressure hPa : 500
Rack travel in m: 11.20...11.50
3rd pressure hPa : 900 Rack travel in m: 11.80...12.00 START CUT-OUT 1/min: 230 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 900 Speed rpm : 800
Del.quantity cm3/ : 71.0...73.0
1000 s: (69.0...75.0) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: 900 : 585 Speed rpm Del.quantity cm3/: 65.0...68.0 1000 s: (62.5...70.5) Aneroid pressure h: -Speed rpm : 500
Del.quantity cm3/ : 20.0...22.0
1000 s: (18.0...24.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.90 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00 LOW IDLE

rpm : 300 Speed Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

F21

Note remarks

Test sheet : MB 6,0 D 58 : 16.08.90 : 29.06.90 Edition Replaces Test cil : ISO-4113

Combination no. : 0 403 446 258

Injection pump

Pump designation : PES6MW100/720RS1129

: 0 413 406 121 EP type number

Governor

Governor design. : RQV300...1300MW50-8 : 0 420 083 222

Governer no.

Customer-spec. information Customer : MD-NFZ

Engine : OM 366 LA

: 149.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 300.0 Rack travel in mm : 5.5...5.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.40...10.00 travel mm

rpm : 1350 2nd speed

: 8.50...8.70 travel mm

rpm : 450 3rd speed

: 2.40...3.00 travel mm

: 300 4th speed rpm

: 1.20...1.60 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 101.0...103.0 Del.quantity 1000 : (99.0...105.0)

: 3.50 Spread cm3

: (6.00) 1000

RATED SPEED

F22

1st version Control Lever position degrees: 116...124 Testing: 1st rack travel in: 10.40 Speed rpm: 1340...1350 2nd rack travel in: 4.00 Speed rpm : 1440...1470 4th rack travel in: 1550 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm : 5.5 Testing: : 100 Speed rom Minimum rack trave: 7.50 : 300 rpm Speed Rack travel in mm : 5.50...5.60 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 CONSTANT REGULATION rpm : 320...530 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : 300 Pressure Rack travel mm : 8.30...8.50 Measurement Speed 1/min: 500 1st pressure hPa : -Rack travel in m: 7.40...7.50 2nd pressure hPa : 450 Rack travel in m: 10.10...10.30 3rd pressure hPa : 1000 Rack travel in m: 11.40...11.50 START CUT-OUT 1/min: 220 (230) Speed FUEL DELIVERY CHARACTERISTICS

: 600 Speed rpm Del.quantity cm3/: 85.5...88.5 1000 s: (83.0...91.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 27.0...29.0 1000 s: (25.0...31.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1340...1350 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.50...5.60

Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0)

cm3 : 3.50Spread 1000 s: (5.00)

Remarks:

1st version

Aneroid pressure h: 1000

Note remarks

Test sheet : MB 6,0 D 65 : 31.08.90 Edition : 29.06.90 Replaces Test oil : ISO-4113

Combination no. : 0 403 446 259

Injection pump

Pump designation : PES6MW100/720RS1131-

: 0 413 406 165 EP type number

Governor

Governor design. : RQV300...1300MW68-2

Governer no. : 0 420 083 224

Customer-spec. information Customer : MB-NFZ

: OMB66LA Engine

: 177.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 6.3...6.5 Del.guantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3Spread

100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450 : 9.40...9.80 travel mm

rpm : 1350 2nd speed

: 8.40...8.60 travel mm : 600 3rd speed rpm

: 3.90...4.50 travel mm

: 300 4th speed rpm : 0.80...1.20 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1350 Speed

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 114.0...116.0 Del.quantity

1000 : (112.0...118.0) cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever position degrees: 116...124 Testing: 1st rack travel in: 13.40 rpm : 1340...1350 Speed 2nd rack travel in: 4.00 Speed rpm : 1480...1510 4th rack travel in: 1600 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 78...86 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.4 Testing: Speed rom : 100 Minimum rack trave: 9.00 rpm : 300 Speed Rack travel in mm : 6.30...6.50 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed man hPa : Pressure : 10.20...10.30 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 11.50...11.70
2nd pressure hPa : 400
Rack travel in m: 13.30...13.50
3rd pressure hPa : 1000 Rack travel in m: 14.40...14.50 START CUT-OUT 1/min: 180 (200) Speed FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750
Del.quantity cm3/ : 106.5...109.5
1000 s: (104.0...112.0)
Spread cm3 : 5.00

1000 s: (7.0)

Aneroid pressure h: -Speed rpm: 500
Del.quantity cm3/: 35.0...37.0
1000 s: (33.0...39.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.40 Speed rpm : 1340...1350 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0) LOW IDLE rpm : 300 Speed Rack travel in mm : 6.30...6.50

Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks: :

Note remarks

: MB 6,0 D 35 Test sheet : 16.08.90 Edition : 06.07.90 Replaces

: ISO-4113 Test oil

: 0 403 446 260 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1120

: 0 413 406 112 EP type number

Governor

Governor design. : RQV300...1300MW50-9

: 0 420 083 223 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366LA Engine

: 149.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65) Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 13.90...14.00

Del.guantity cm3/: 10.8...11.0

100 s: (10.6...11.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm : 6.4...6.6 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

rpm : 1450 1st speed

: 9.40...10.00 rpm : 1350 travel mm

2nd speed

: 8.50...8.70 travel mm

rpm : 450 3rd speed

: 2.40...3.00 travel mm rpm : 300

4th speed

travel mm : 1.20...1.60

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1340

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 108.0...110.0 Del.quantity

1000 : (106.0...112.0) : 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control Lever position degrees: 111...119 Testing: 1st rack travel in: 12.90 Speed rpm : 1340...1350 2nd rack travel in: 4.00 rpm : 1460...1490 Speed 4th rack travel in: 1530 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 76...84 Setting point w/out bumper spring Speed rpm : 300 Rack travel in mm: 6.5 Testing: : 100 Speed rpm Minimum rack trave: 8.00 : 300 Speed rpm Rack travel in mm : 6.40...6.60 CONSTANT REGULATION rpm : 320...550 Speed Aneroid/Altitude Compensator Test 1st version Settina : 500 Speed rpm : 8.40...8.50 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 280 Rack travel in m: 9.40...9.60 2nd pressure hPa : 600 Rack travel in m: 12.50...12.70 3rd pressure hPa : 1000 Rack trave! in m: 13.90...14.00 START CUT-OUT 1/min: 230 (250) Speed FUEL DELIVERY CHARACTERISTICS

cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: -Speed rpm: 500 Del.quantity cm3/: 26.0...28.0 1000 s: (24.0...30.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.90 rpm : 1340...1350 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0) LOW IDLE : 300 Speed rpm Rack travel in mm : 6.40...6.60 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.501000 s: (5.50) Remarks:

Speed

1st version

Aneroid pressure h: 1000

rpm

Del.quantity cm3/: 98.0...102.0 1000 s: (96.0...104.0)

: 750

Test pressure, bar: 30...32 BOSCH INJ. PUMP TEST SPECIFICATIONS : 3.25...3.35 : (3.20...3.40) Note remarks Prestroke mm Rack travel in mm : 9.00...12.00 : IHC 7,7 A 1 Test sheet : 10.08.90 : 1-5-3-6-2-4 Edition Firing order Replaces Test oil : ISO-4113 : 0 403 446 261 : 0-60-120-180-240-300 Combination no. Phasing Phasing Injection pump Tolerance + - ° : 0.50 (0.75) Pump designation: PES6MW100/320RS1204 EP type number : 0 413 406 192 Time to cyl. no. : 1 Governor : RQV350...1200MW46-27 Governor design. BASIC SETTING Governer no. : 0 420 083 207 rpm : 800 1st speed : 1815516091 Cust. part no. Rack travel in mm : 11.40...11.50 Customer-spec. information Del.quantity cm3/: 12.1...12.3 Customer : NAVISTAR 100 s: (11.9...12.5) Engine : DTA-360 : 138.0 Spread cm3 : 0.31st version kW : 2400 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 350.0 2nd speed Rack travel in mm: 5.3...5.5 Test oil Del.quantity cm3/: 1.6...2.0 inlet temp. °C : 38...42 100 s: (1.3...2.2) cm3 : 0.3Overflow valve Spread : 2 417 413 038 100 s: (0.5) (B) Setting of injection pump Inlet press., bar: 2.80 with governor Test nozzle holder : 1 688 901 101 GUIDE SLEEVE TRAVEL assembly rpm : 1460 1st speed : 9.10...9.50 travel mm Opening : 1350 : 207...210 2nd speed pressure, bar rom : 8.30...8.50 travel mm : 550 Orifice plate 3rd speed rpm : 3.10...3.70 diameter mm : 0,6 travel mm rpm : 350 4th speed : 1.30...1.70 travel mm : 1 680 750 008 Test lines FULL LOAD DELIV. AT FULL LOAD STOP Outside diameter x Wall thickness 1st version : 6.00X2.00X600 Speed rpm : 800 x Length mm Aneroid pressure h: 900 (A) Injection pump setting values Del.quantity : 121.0...123.0 1000 : (119.0...125.0) Insp. values in parentheses Set equal delivery quant. Spread cm3: 3.50 1000 : (6.00) per values

RATED SPEED

BEGINNING OF DELIVERY

1st version Control lever

position degrees: 43...51

Testina:

1st rack travel in: 9.80

rpm : 1415...1435 Speed

2nd rack travel in: 4.00

rpm : 1505...1515 Speed

4th rack travel in: 1600

rpm : 0.00...1.00Speed

LOW IDLE 1

Control lever

position degrees: 8...16

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.4

Testina:

Speed : 100 rpm Minimum rack trave: 9.00 : 350 Speed rom

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

: 300...450 Speed rpm

TORQUE CONTROL

Torque control curve - 1st version

rpm : 800 1st speed

Rack travel in m: 11.40...11.50

: 1350 rpm 2nd speed

Rack travel in m: 10.70...10.80

: 1100 3rd speed rpm

Rack travel in m: 10.90...11.20

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rom Pressure hPa : -

: 8.80...8.90 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 220

Rack travel in m: 9.40...9.50

2nd pressure hPa : 500

Rack travel in m: 10.60...11.00

3rd pressure hPa : 900

Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 1350
Del.quantity cm3/ : 109.0...111.0
1000 s: (107.0...113.0)

cm3 : 5.00Spread 1000 s: (7.0)

Aneroid pressure h: -

Speed rpm

Del.quantity cm3/: 71.0...73.0 1000 s: (69.0...75.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1415...1435 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0)

LOW IDLE

Speed rpm

Rack travel in mm : 5.30...5.50

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: IHC #1815516C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before

shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7.6 W 2 : 16.08.90 Test sheet Edition Replaces : ISO-4113 Test oil : 0 403 446 262 Combination no. Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Governor Governor design. : RQV350...1200MW46-33 Governer no. : 0 420 083 226 : 1817194091 Cust. part no. Customer-spec. information Customer : NAVISTAR : DTA-466 Engine 1st version kW : 172.0 Rated speed : 2400 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder assembly : 1 688 901 101 Openina (: 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

Test pressure, bar: 30...32 : 3.25...3.35 Prestroke mm : (3.20...3.40)

Rack travel in mm: 9.00...12.00

Firing order: 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 800 1st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 13.1...13.3 100 s: (12.9...13.5) Spread cm3 : 0.3100 s: (0.6) 2nd speed rpm : 350.0Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.3100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL 1st speed rpm : 1350 travel mm : 8.30...8.50 2nd speed rpm : 1460 travel mm : 9.10...9.50 rpm : 550 3rd speed : 3.10...3.70 travel mm : 350 4th speed rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 800 Speed Aneroid pressure h: 900 : 131.0...133.0 Del.quantity 1000 : (129.0...135.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED

1st version

BEGINNING OF DELIVERY

per values

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

Control Lever position degrees: 98...106 Testing: 1st rack travel in: 11.10 Speed rom: 1270...1290 2nd rack travel in: 4.00 rpm : 1405...1415 Speed 4th rack travel in: 1500 rpm : 0.00...1.00Speed LOW IDLE 1 Control lever position degrees: 66...74 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 5.4 Testina: Speed rpm Minimum rack trave: 9.00 : 350 Speed rpm Rack travel in mm : 5.30...5.50 CONSTANT REGULATION rpm : 300...450 Speed Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 9.00...9.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 9.60...9.70 2nd pressure hPa : 575 Rack travel in m: 11.30...11.70 3rd pressure hPa : 900 Rack travel in m: 12.10...12.20 START CUT-OUT 1/min: 280 (290) Speed FUEL DELIVERY CHARACTERISTICS 1st version

Spread cm3 : 6.501000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 72.0...74.0 1000 s: (70.0...76.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1270...1290 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 130.0...170.0 1000 s: (127.0...173.0) Rack travel in mm : 13.00...14.00 LOW IDLE rpm : 350 Speed Rack travel in mm : 5.30...5.50 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: : IHC #1817194C91 Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter. In unlatched condition, do not operate greater than n = 500 1/min Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before shutoff.

Speed

Aneroid pressure h: 900

rpm : 1200

Del.quantity cm3/: 128.5...132.5 1000 s: (126.5...134.5)

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : IHC 7,6 W 3 Test sheet Edition : 16.08.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 446 263 Injection pump Pump designation : PES6MW100/320RS1198 : 0 413 406 188 EP type number Governor Governor design. : RQV350...1200MW46-34 : 0 420 083 227 Governer no. : 1817193c91 Cust. part no. Customer—spec. information Customer : NAVISTAR : DTA-466 Engine : 172.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil : 38...42 inlet temp. °C Overflow valve : 2 417 413 038 Inlet press., bar: 2.80 Test nozzle holder : 1 688 901 101 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 : 1 680 750 008 Test lines Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 3.25...3.35 Prestroke mm : (3.20...3.40) Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm: 800 1st speed Rack travel in mm : 12.10...12.20 Del.guantity cm3/: 13.1...13.3 100 s: (12.9...13.5) cm3 : 0.3Spread *00 s: (0.6) rpm : 350.02nd speed Rack travel in mm : 5.3...5.5 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1350 1st speed : 8.30...8.50 travel mm rpm : 1460 2nd speed travel mm : 9.10...9.50 550 3rd speed rpm : 3.10...3.70 : 350 travel mm 4th speed rpm : 1.30...1.70 travel mm FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 800 Aneroid pressure h: 900 : 131.0...133.0 Del.quantity 1000 : (129.0...135.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version

Test pressure, bar: 30...32

Control Lever

position degrees: 98...106

Testina:

1st rack travel in: 11.10

rpm : 1270...1290 Speed

2nd rack travel in: 4.00

rpm : 1405...1415 Speed

4th rack travel in: 1500

Speed rpm : 0.00...1.00

LOW IDLE 1

Control Lever

position degrees: 66...74

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.4

Testina:

: 100 Speed **FDM**

Minimum rack trave: 9.00

: 350 Speed COM

Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

rbm : 300...450 Speed

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed COM

Pressure hPa :

9.40...9.50 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 250

Rack travel in m: 10.00...10.10

2nd pressure hPa : 575
Rack travel in m: 11.20...11.60
3rd pressure hPa : 900

Rack travel in m: 12.10...12.20

START CUT-OUT

1/min: 280 (290) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

: 1200 Speed magn

Del.quantity cm3/: 128.5...132.5 1000 s: (126.5...134.5)

cm3 : 6.50 Spread

1000 s: (7.0)

Aneroid pressure h: -

rpm : 500 Speed

Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

rom : 1270...1290 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 130.0...170.0

1000 s: (127.0...173.0)

Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm: 350
Rack travel in mm: 5.30...5.50
Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: IHC #1817193C91

Only perform pump setting with original

overflow valve without IH hose and

restrictor 1.2 mm diameter.

In unlatched condition, do not

operate greater than n = 500 1/min

Set low idle at stop screw.

Set shutoff stop 1.5...2.0 mm before

shutoff.

: 3.50...3.60 : (3.45...3.65) BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MAN 7,2 W : 20.07.90 Edition : 06.07.90 Replaces : ISO-4113 : 0-60-120-180-240-300 Phasing Test oil : 0 403 456 109 Tolerance + - ° : 0.50 (0.75) Combination no. Time to cyl. no. : 1 Injection pump Pump designation : PES6MW100/321RS1200 : 0 413 406 189 BASIC SETTING EP type number Governor : RQV250...1200MW83-2 Governor design. 1st speed rpm: 1000 : 0 420 083 216 Governer no. Rack travel in mm : 12.50...12.60 : 3-7036 Cust. part no. Del.quantity cm3/ : 13.7...13.9 Customer—spec. information 100 s: (13.5...14.1) Customer : MAN : D 0826 LF02 Spread cm3 : 0.3Engine 100 s: (0.6) : 169.0 1st version kW Rated speed : 2400 rpm : 250.0 2nd speed TEST BENCH REQUIREMENTS Rack travel in mm : 4.9...5.1 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) Test oil inlet temp. °C : 38...42 Spread cm3 : 0.3100 s: (0.5) Overflow valve : 1 417 413 047 (B) Setting of injection pump with governor Inlet press., bar: 1.50 GUIDE SLEEVE TRAVEL 1st speed rpm : 1250 Test nozzle holder : 0 681 343 009 : 10.50...10.60 assembly travel mm rpm : 810 2nd speed : 5.90...6.10 Opening travel mm : 500 : 172...175 3rd speed pressure, bar rom 3.70...4.30 travel mm : 250 4th speed rpm : 1.20...1.60 : 1 680 750 008 Test Lines travel mm GUIDE SLEEVE POSITION Outside diameter x Wall thickness Control-lever position : 6.00x2.00x600 x Length mm Degree: -1 rpm : 1225 Speed Rack travel in mm : 15.20...17.80 (A) Injection pump setting values Insp. values in parentheses FULL LOAD DELIV. AT FULL LOAD STOP Set equal delivery quant. per values

1st version

Speed

rpm : 1000

Del.quantity : 137.0...141.0)

Aneroid pressure h: 1000

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 120...128 Setting point: Speed rpm Rack travel in mm: 16.5 Testina: 1st rack travel in: 11.50 Speed rpm : 1245...1260 2nd rack travel in: 4.00 rpm : 1300...1330 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00LOW IDLE 1 Control lever position degrees: 77...85 Setting point w/out bumper spring : 250 Speed rpm Rack travel in mm: 5.0 Testing: : 100 Speed rpm Minimum rack trave: 6.50 : 250 rom Rack travel in mm : 4.90...5.10 CONSTANT REGULATION : 330...420 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rpm hPa : -Pressure : 9.70...9.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 170

Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.50...12.60 START CUT-OUT Speed 1/min: 170 (200)

FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

: 600 Speed rpm Del.quantity cm3/: 135.0...138.0 1000 s: (132.5...140.5)

: 5.00 Spread cm3 1000 s: (7.0) Aneroid pressure h: 1000 Speed : 800 rpm

Del.quantity cm3/: 138.0...141.0 1000 s: (135.5...143.5)

Aneroid pressure h: 1000 : 1200 Speed rpm

Del.quantity cm3/: 136.0...139.0 1000 s: (133.5...141.5)

Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 74.0...76.0 1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 1245...1260 Speed

STARTING FUEL DELIVERY

Speed rpm Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

rpm : 250 Speed Rack travel in mm : 4.90...5.10 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

: MAN #3-7036 Start-of-delivery mark is at start of

delivery of cylinder 1

G07

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MAN 7,2 V : 20.07.90 Test sheet Edition : 06.07.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 456 110 Injection pump Pump designation : PES6MW100/321RS1201 : 0 413 406 190 EP type number Governor Governor design. : RQ250/1200MW84-3 : 0 420 082 043 Governer no. Cust. part no. : 3-7047 Customer-spec. information Customer : MAN Engine : D 0826 LF02 : 165.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test lines : 1 680 750 008 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values

Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 15.00...0.00 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasina : 0.50 (0.75) Tolerance + - ° Time to cyl. no. : 1 BASIC SETTING rpm: 1000 1st speed Rack travel in mm : 12.50...12.60 Del.quantity cm3/: 13.7...13.9 100 s: (13.5...14.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 250.02nd speed Rack travel in mm : 5.4...5.6 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.5 Spread 100 s: (0.7) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 1300 1st speed 8.40...8.80 travel mm rpm : 1260 2nd speed travel mm : 6.60...6.80 : 345 3rd speed rpm : 4.00...4.60 travel mm : 250 4th speed rpm : 1.80...2.20 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -2 rpm : 1000 Speed Rack travel in mm : 18.20...19.80 FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed

Aneroid pressure h: 1000

Del.quantity

: 137.0...139.0

1000 : (135.0...141.0)

: 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 92...100 Testing: 1st rack travel in: 11.50 rpm : 1245...1260 Speed 2nd rack travel in: 4.00 rpm : 1300...1330 4th rack travel in: 1400 rom : 0.00...1.00 Speed LOW IDLE 1 Control Lever position degrees: 69...77 Setting point w/out bumper spring : 250 COM Rack travel in mm: 5.5 Testina: : 100 Speed rom Minimum rack trave: 7.00 Speed rpm : 250 Rack travel in mm : 5.40...5.60 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1000 Rack travel in m: 12.50...12.60 2nd speed rpm : 600 Rack travel in m: 12.60...12.80 rpm : 800 3rd speed Rack travel in m: 12.50...12.80 rpm : 1200 4th speed Rack travel in m: 12.20...12.40 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed man hPa : 170 Pressure Rack travel mm : 10.20...10.30 Measurement

1/min: 500 Speed 1st pressure hPa : -Rack travel in m: 10.00...10.10 2nd pressure hPa : 550 Rack travel in m: 11.90...12.20 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.80 START CUT-OUT

Speed 1/min : 180 (200)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000

Speed rpm : 600 Del.quantity cm3/: 135.0...138.0 1000 s: (132.5...140.5)

: 5.00 cm3 Spread 1000 s: (7.0) Aneroid pressure h: 1000 : 800 Speed rpm

Del.quantity cm3/: 138.0...141.0 1000 s: (135.5...143.5) Aneroid pressure h: 1000

: 1200 Speed rpm

Del.quantity cm3/: 134.5...137.5 1000 s: (132.0...140.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/ : 74.0...76.0 1000 s: (72.0...78.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 1245...1260 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 130.0...140.0 1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250 Rack travel in mm : 5.40...5.60 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 5.00 Spread

1000 s: (7.00)

Remarks:

: MAN #3-7047 Start-of-delivery mark is at start of

delivery of cylinder 1

Note remarks

: MMM 6,2 G Test sheet : 04.05.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 466 108

Injection pump

Pump designation: PES6MW100/320/3RS116

: 0 413 406 149 EP type number

Governor

Governor design. : RSV325...1200MW0A326

: 0 420 085 085 Governer no.

Customer-spec. information Customer

: TD 226 B-6 Engine

1st version kW : 136.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina (1997)

pressure, bar : 172...175

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Lenath mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 4.00...4.10 : (3.95...4.15) Prestroke mm

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.40...10.50

Del.quantity cm3/: 11.6...11.8

100 s: (11.4...12.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 325.0 2nd speed Rack travel in mm: 6.6...6.7 Del.quantity cm3/: 0.8...1.2 100 s: (0.6...1.4) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200 Aneroid pressure h: 700

: 116.5...118.5 Del.quantity

1000 : (114.5...120.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Setting point:

: 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.40 rpm : 1240...1250 Speed 2nd rack travel in: 4.00 rpm : 1260...1300 Speed 4th rack travel in: 1380 rpm : 0.30...1.70 Speed 5th rack travel in: 1295...1325 Speed rpm : 4.00LOW IDLE 1 Control Lever position degrees: 15...23 Setting point w/out bumper spring rpm Rack travel in mm : 6.6 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 325 Rack travel in mm : 6.60...6.70 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1200 Rack travel in m: 10.40...10.50 ad speed rpm : 800 2nd speed Rack travel in m: 10.60...10.70 : 500 3rd speed rpm Rack travel in m: 10.70...10.80 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 8.50...8.60 Rack travel mm Measurement Speed 1/min : 500 1st pressure hPa : 270 Rack travel in m: 9.10...9.20 2nd pressure hPa : 450 Rack travel in m: 9.90...10.20 3rd pressure hPa : 700 Rack travel in m: 10.60...10.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 700 rpm : 800 Speed Del.quantity cm3/: 113.5...116.5 1000 s: (110.5...118.5)

Spread cm3 : 5.001000 s: (7.0) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 62.5...64.5 1000 s: (60.5...66.5) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.40 rpm : 1240...1250 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 100.0...120.0 1000 s: (97.0...123.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Remarks:

Test electrically-released starting quantity (EES) with 12 volts

BOSCH INJ. PUMP TEST SPECIFICATIONS Test pressure, bar: 30...32 : 3.45...3.55 Prestroke mm Note remarks : (3.40...3.60)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Test sheet : CUM 8,3 I 4 : 06.07.90 Firing order Edition Replaces : ISO-4113 Test oil : 0-60-120-180-240-300 Combination no. : 0 403 466 117 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6MW100/120RS1178 EP type number : 0 413 406 160 Time to cyl. no. : 1 Governor Governor design. : RSV350...1250MW2A332 Governer no. : 0 420 085 110 BASIC SETTING 1st speed rpm: 1250 Cust. part no. : 3913734 Rack travel in mm : 14.10...14.20 Customer—spec. information Del.quantity cm3/: 15.5...15.7 Customer : CUMMINS/US 100 s: (15.3...15.9) Engine : 6 CT : 204.0 : 2500 cm3 : 0.31st version kW Spread Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 350.0 Rack travel in mm : 6.2...6.4 Test oil Del.quantity cm3/: 2.0...2.4 inlet temp. °C : 38...42 100 s: (1.7...2.6) cm3 : 0.3 Overflow valve Spread : 1 417 413 047 100 s: (0.5) Inlet press., bar: 1.50 GUIDE SLEEVE POSITION Control-lever position Test nozzle holder Degree: -3 : 1 688 901 017 rpm : 800 assembly Speed Rack travel in mm: 0.30...1.00 Opening 1 4 1 pressure, bar : 207...210 Governor spring pre-tension Click setting x : 5.00 Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version rpm : 1250 Test lines : 1 680 750 014 Speed Aneroid pressure h: 900 155.5...157.5 1000 : (153.5...159.5) Outside diameter Del.quantity x Wall thickness : 3.50 x Length mm : 6.00x2.00x600 Spread cm3 1000 : (6.00) (A) Injection pump setting values Insp. values in parentheses RATED SPEED Set equal delivery quant. 1st version per values Control lever

position degrees: 57...65

BEGINNING OF DELIVERY

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.10 Speed rpm : 1305...1315 2nd rack travel in: 4.00

rpm : 1425...1455 Speed

3rd rack travel in: 4.00

rpm : 1440...1470

4th rack travel in: 1650

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.8

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 5.70...5.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

Rack travel mm : 14.10...14.20

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80 2nd pressure hPa : 255 Rack travel in m: 11.60...11.80

3rd pressure hPa : 435

Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

rpm_ : 500 Speed

Del.quantity cm3/: 88.5...92.5

1000 s: (86.5...94.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.10

Speed rpm : 1305...1315

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 160.0...180.0 1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.40 Del.quantity cm3/: 20.0...24.0

1000 s: (17.5...26.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: CUM #3913734

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

: CUM 8,3 I 5 Test sheet : 10.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 466 117

Injection pump

Pump designation : PES6MW100/120RS1178

: 0 413 406 160 EP type number

Governor

: RSV350...1250MW2A332 Governor design.

: 0 420 085 152 Governer no.

Cust. part no. : 3913734

Customer-spec. information : CUMMINS/US Customer

Engine : 6 CT

: 204.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.45...3.55 Prestroke mm

: (3.40...3.60)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 14.10...14.20

Del.guantity cm3/: 15.5...15.7

100 s: (15.3...15.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 6.2...6.4 Del.quantity cm3/ : 2.0...2.4 100 s: (1.7...2.6)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed Aneroid pressure h: 900

: 155.5...157.5 1000 : (153.5...159.5) Del.quantity

: 3.50 Spread cm3 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Setting point:

rpm : 800 Speed Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.10

rpm : 1305...1315 Speed

2nd rack travel in: 4.00

rpm : 1425...1455 Speed

3rd rack travel in: 4.00

Speed rpm : 1440...1470 4th rack travel in: 1650

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.8

Testing:

: 100 Speed rpm

Minimum rack trave: 19.00 : 350 rpm

Rack travel in mm : 5.70...5.90

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 900 Pressure

: 14.10...14.20 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 10.60...10.80

2nd pressure hPa : 255

Rack travel in m: 11.60...11.80

3rd pressure hPa : 435

Rack travel in m: 13.00...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm: 500 Del.quantity cm3/: 88.5...92.5

1000 s: (86.5...94.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.10

rpm : 1305...1315 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 160.0...180.0

1000 s: (155.0...185.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.40

Del.quantity cm3/: 20.0...24.0 1000 s: (17.5...26.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

: CUM #3913734

Start-of-delivery mark at 14° angular displacement of the cam after start of

delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm

before stop.

Note remarks

Test sheet : CUM 8,3 Q : 29.06.90 Edition : 12.04.90 Replaces : ISO-4113 Test oil

Combination no. : 0 403 466 123

Injection pump

Pump designation : PES6MW100/120RS1137-

EP type number : 0 413 406 180

Governor

: RSV500...1250MW2A319 Governor design.

-16

: 0 420 085 130 Governer no.

Cust. part no. : 3918357

Customer-spec. information : CUMMINS Customer

: 6 CTA-8.3 L Engine

: 171.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 6.5...6.7 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 131.0...133.0 Del.quantity 1000 : (129.0...135.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever position degrees: 41...49 Setting point: rpm : 800 Speed Rack travel in mm: 0.6 Testina: 1st rack travel in: 11.60 rpm : 1320...1330 Speed 2nd rack travel in: 4.00 rpm : 1360...1370 Speed 3rd rack travel in: 4.00 rpm : 1360...1390 Speed 4th rack travel in: 1550 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 500 Rack travel in mm: 6.1 Testina: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 500 Rack travel in mm : 6.00...6.20 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 123.5...126.5 1000 s: (121.0...129.0) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1320...1330 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 125.0...145.0

1000 s: (122.0...148.0)

Rack travel in mm : 19.00...21.00

rpm : 500

Rack travel in mm : 6.50...6.70 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: CUM #3918357 Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

G17

Speed

LOW IDLE

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : MB 4,0 A 26 : 16.08.90 Edition Replaces : ISO-4113 Test oil Combination no. : 0 403 474 004 Injection pump Pump designation : PES4MW100/720RS1151 : 0 413 404 104 EP type number Governor Governor design. : RSV350...1300MW0A329 Governer no. : 0 420 085 088 Customer-spec. information : MB-NFZ Customer : 0M364LA Engine : 100.0 1st version kW Rated speed : 2600 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** pressure, bar : 172...175 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00X1.50X600 x Length mm (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.70...3.80 Prestroke mm : (3.65...3.85) Rack travel in mm : 9.00...12.00 G18

: 1-3-4-2 Firing order : 0-90-180-270 Phasing : 0.50 (0.75) Tolerance + - ° BASIC SETTING 1st speed rom: 1280 Rack travel in mm: 12.40...12.50 Del.quantity cm3/: 9.7...9.9 100 s: (9.5...10.1) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.02nd speed Rack travel in mm: 6.0...6.2 Del.quantity cm3/: 0.7...1.1 100 s: (0.4...1.3) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.50...1.00 Governor spring pre-tension Click setting x : 4.00FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1280 Speed Aneroid pressure h: 900 : 97.0...99.0 : (95.0...101.0) Del.quantity 1000 : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 114...122 Setting point: Speed rpm Rack travel in mm: 0.6 1st rack travel in: 11.40

Speed rpm : 1320...1330 2nd rack travel in: 4.00 rpm : 1385...1415 Speed 4th rack travel in: 1450 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 6.1 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Rack travel in mm : 6.00...6.20 Rack travel in mm : 2.00 : 390...450 Speed rom Aneroid/Altitude Compensator Test 1st version Setting

: 500 Speed rpm Pressure hPa : -Rack travel mm : 10.50...10.60

Measurement

1/min: 500 Speed

1st pressure hPa : 200 Rack travel in m: 11.10...11.20

2nd pressure hPa : 350

Rack travel in m: 11.80...12.10 3rd pressure hPa : 900

Rack travel in m: 12.40...12.50

FUEL DELIVERY CHARACTERISTICS

1st version Araroid pressure h: 900 rpm : 600 Speed Del.quantity cm3/: 77.0...80.0 1000 s: (74.5...82.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 7.0...11.0 1000 s: (4.5...13.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Check hydraulic latching of starting fuel delivery with 1.5 bar air.

G19

Note remarks

Test sheet : MB 4,0 A 27 : 16.08.90 Edition

Replaces

Test oil : ISO-4113

: 0 403 474 006 Combination no.

Injection pump

Pump designation : PES4MW100/720RS1127

: 0 413 404 103 EP type number

Governor

: RSV350...1300MW0A322 Governor design.

: 0 420 085 093 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : OM 364 A

1st version kW : 85.0

: 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Openina

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-3-4-2

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 8.0...8.2

100 s: (7.8...8.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.8...7.9 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1300 Speed

: 80.0...82.0 Del.quantity 1000 : (78.0...84.0)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 116...124

Setting point:

Speed rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 10.10

: 1340...1350 Speed rpm 2nd rack travel in: 4.00 Speed : 1430...1460 rom 4th rack travel in: 1550 Speed rpm : 0.00...1.00 LOW IDLE 1 Control lever position degrees: 82...90 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 7.8 Testing: Speed : 100 rpm Minimum rack trave: 9.50 Speed rpm : 350 Rack travel in mm : 7.80...7.90 CONSTANT REGULATION rpm : 330...600 Speed TORQUE CONTROL Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 11.10...11.20 nd speed rpm : 750 2nd speed Rack travel in m: 11.90...12.10 3rd speed rpm : 585 Rack travel in m: 12.10...12.30 rpm : 1000 4th speed Rack travel in m: 11.10...11.30 START CUT-OUT Speed 1/min: 230 (250) FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 76.0...78.0 1000 s: (74.0...80.0) cm3 : 5.00 Spread 1000 s: (7.0) Speed rpm : 585 Del.quantity cm3/ : 71.5...74.5 1000 s: (69.0...77.0) RACK STOP ADJUSTMENT

: 100 Speed rpm

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 rpm : 1340...1350 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

Speed : 350 rpm Rack travel in mm : 7.80...7.90 Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

:

Remarks:

G21

Note remarks

Test sheet : MB 6,0 K : 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 474 010

Injection pump

Pump designation : PES4MW100/720RS1193

EP type number : 0 413 404 109

Governor

: RSV350...750MW0A336-Governor design.

: 0 420 085 133 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M364A Engine

1st version kW : 84.0 : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

: 0-90-180-270 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 7001st speed

Rack travel in mm : 13.80...13.90

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 7.5...7.7
Del.quantity cm3/ : 0.9...1.3 100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

: 95.0...97.0 Del.quantity 1000 : (93.0...99.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 72...80

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.80

Speed rpm : 750...755 * 2nd rack travel in: 4.00

rpm : 780...793 Speed

4th rack travel in: 950

rom : 0.30...1.40 Speed

LOW IDLE 1

Control lever

position degrees: 60...68 Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.6

Speed rpm : 350 Rack travel in mm : 7.50...7.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.50...7.70 Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 30...38 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Observe VDT-I-420/120

Note remarks

Test sheet : RVI 5,5 A 1 : 06.07.90 Edition : 13.06.88 Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 013

Injection pump

Pump designation : PES6MW80/320RS1104

: 0 413 486 002 EP type number

Governor

Governor design. : RSV300...1450MW0A801

: 0 420 085 067 Governer no.

Customer-spec. information Customer

Engine : MD060212

: 97.8 1st version kW : 2900 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 028

Inlet press., bar: 2.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 173...176

Test lines : 1 680 750 008

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 1.75...1.85 : (1.70...1.90) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 900

Rack travel in mm : 11.20...11.30

Del.quantity cm3/ : 5.2...5.4

100 s: (5.0...5.6)

cm3 : 0.2Spread

100 s: (0.4)

rpm : 300.02nd speed

Rack travel in mm : 6.60...6.70 Del.quantity cm3/ : 1.2...1.5

100 s: (1.1...1.7) cm3 : 0.2

Spread

100 s: (0.3)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rom

Del.quantity : 52.5...54.5

: (50.5...56.5) 1000

: 2.50 Spread cm3

1000

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.20

rpm : 1520...1530 Speed

2nd rack travel in: 4.00

rpm : 1615...1645 Speed

4th rack travel in: 1700 Speed rpm : 0.80...1.70 LOW IDLE 1 Control lever position degrees: 29...37 Setting point w/out bumper spring rpm : 300 Rack travel in mm: 6.6 Speed : 300 rpm Rack travel in mm : 6.60...6.70 Speed COM Maximum rack trave: 8.00 TORQUE CONTROL Torque control curve - 1st version rpm : 900 1st speed Rack travel in m: 11.20...11.30 2nd speed rpm : 1450 Rack travel in m: 10.20...10.30 3rd speed rpm : 1100 Rack travel in m: 10.50...10.70 FUEL DELIVERY CHARACTERISTICS 1st version : 1450 Speed rom Del.quantity cm3/: 54.5...56.5 1000 s: (52.5...58.5) Spread cm3: 3.50 1000 s: (4.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1520...1530 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 67.0...77.0 1000 s: (64.0...80.0) Rack travel in mm: 0.00...15.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 6.60...6.70 Del.quantity cm3/: 12.5...15.5 1000 s: (11.0...17.0) Spread cm3 : 2.00 1000 s: (3.50)

Position idle auxiliary spring to make contact, then turn back 1/4 rotation

G25

Remarks:

Note remarks

: MB 6,0 D 91 Test sheet : 01.06.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 037A

Injection pump

Pump designation : PES6MW100/720RS1130

: 0 413 406 122 EP type number

Governor

Governor design. : RSV350...1300MWDA318

: 0 420 085 052 Governer no.

Customer-spec, information : MB-NFZ Customer

: OM 366 A Engine

: 112.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1300 1st speed

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 7.4...7.6

100 s: (7.2...7.8)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 8.0...8.2 Del.quantity cm3/ : 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed

: 74.0...76.0 Del.quantity

: (72.0...78.0) 1000

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 55..63

Setting point:

Speed rom Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20 Speed rpm : 1320...1330 2nd rack travel in: 4.00

rpm : 1380...1410 Speed

4th rack travel in: 1560

rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 25...33 Setting point w/out bumper spring rpm : 350 Speed Rack travel in mm: 8.1 Testing: rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm: 350 Rack travel in mm : 8.00...8.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL Dimension a mm : 2.00 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.20...10.30 rpm : 800 2nd speed Rack travel in m: 12.20...12.30 d speed rpm : 750 3rd speed Rack travel in m: 12.20...12.30 4th speed rpm : 950 Rack travel in m: 11.70...11.80 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rpm Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.20 rpm : 1320...1330 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0) LOW IDLE Speed rpm : 350 Rack travel in mm : 8.00...8.20

G27

Del.quantity cm3/: 9.0...13.0 1000 s: (7.0...15.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Note remarks

Test sheet : MB 6,0 0 46 Edition : 16.08.90 : 03.03.89 Replaces Test oil : ISO-4113

: 0 403 476 055 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RSV350...1200MW0A316

-8

: 0 420 085 097 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366A Engine

1st version kW : 92.0 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.4

100 s: (6.0...6.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm: 6.3...6.9 Del.quantity cm3/: 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rom : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 15.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200Speed

: 62.0...64.0 Del.quantity : (60.0...66.0) 1000

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 8.80

rpm : 1235...1240 * Speed

2nd rack travel in: 4.00

rpm : 1260...1273 Speed

3rd rack travel in: 4.00

: 1300...1330 Speed rpm 4th rack travel in: 1450

rpm : 0.30...1.70Speed 5th rack travel in: 1245...1260

rpm : 8.80 Speed

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm: 6.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350

Rack travel in mm : 6.30...6.90

Rack travel in mm : 2.00

: 415...475 Speed rom

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1200 Rack travel in m: 9.80...9.90

2nd speed rpm : 800

Rack travel in m: 10.70...10.80

3rd speed rpm : 950

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.80

rpm : 1235...1240 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.30...6.90 Del.quantity cm3/: 9.0...11.0

1000 s: (6.0...14.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

: MB 6,0 0 37 : 16.08.90 Test sheet Edition : 03.03.89 Replaces : ISO-4113 Test oil

Combination no. : 0 403 476 056

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

: RSV350...1200Mw0A316 Governor design.

: 0 420 085 090 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM366A Engine

: 100.0 1st version kW : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x. Wall thickness

: 6.00x1.50x600 k Length mm

(A) Injection pump setting values Inch. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 6.1...6.7 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 69.0...71.0 : (67.0...73.0) Del.quantity 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

: 800 Speed rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245 * 2nd rack travel in: 4.00

rpm : 1280...1293 Speed

3rd rack travel in: 4.00

rpm : 1300...1330 Speed

4th rack travel in: 1450

rpm : 0.30...1.70 Speed 5th rack travel in: 1240...1255

rpm : 9.20 Speed

LOW IDLE 1

Setting point w/out bumper spring Speed rpm : 350

rpm Rack travel in mm: 6.4

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.10...6.70 Rack travel in mm : 2.00

rpm : 415...475

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 10.20...10.30

2nd speed rpm : 800

Rack travel in m: 11.10...11.20

rpm : 900 3rd speed

Rack travel in m: 11.00...11.20

4th speed : 1050 rpm

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 69.0...71.0

1000 s: (67.0...73.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.10...6.70

Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0)

cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : MB 6,0 D 39 : 16.08.90 Edition : 03.03.89 Replaces

Test oil : ISO-4113

: 0 403 476 062 Combination no.

Injection pump

Pump designation : PES6MW100/720RS1172

: 0 413 406 155 EP type number

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 091 Governer no.

Customer-spec. information Customer : MB-NFZ

: OM 366 LA Engine

: 169.0 1st version kW Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter

x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 19.00...21.00

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 14.40...14.50

Del.quantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1000

: 105.0...107.0 Del.quantity 1000 : (103.0...109.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.40

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

rpm : 1395...1425 Speed 4th rack travel in: 1450 rpm : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 22...30 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 6.0 Testina: Speed : 100 nom Minimum rack trave: 7.60 rpm : 350 Speed Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Ameroid/Altitude Compensator Test

1st version
Setting
Speed rpm : 500
Pressure hPa : Rack travel mm : 10.70...10.80

Measurement

Speed 1/min: 500

1st pressure hPa: 450
Rack travel in m: 11.90...12.10
2nd pressure hPa: 650
Rack travel in m: 13.40...13.60
3rd pressure hPa: 1000
Rack travel in m: 14.40...14.60

FUEL DELIVERY CHARACTERISTICS

1st version Aneroid pressure h: 1000 : 900 Speed rpm Del.quantity cm3/: 98.0...101.0 1000 s: (95.5...103.5) cm3 : 5.00Spread 1000 s: (7.0) Aneroid pressure h: Speed rpm: 500 Del.quantity cm3/: 31.0...33.0 1000 s: (29.0...35.0) cm3 : 3.50 Spread 1000 s: (6.00)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 13.40 Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 90.0...100.0 1000 s: (87.0...103.0)

LOW IDLE

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Note remarks

: MB 6,0 D 49 : 16.08.90 : 30.09.88 Test sheet Edition

Replaces : ISO-4113 Test oil

Combination no. : 0 403 476 064

Injection pump

Pump designation : PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

: RSV350...1300Mw0A329 Governor design.

: 0 420 085 095 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 LA Engine

1st version kW : 150.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 11.50...11.60

Del.quantity cm3/: 9.7...9.9

100 s: (9.5...10.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/:0.8...1.2

100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1280 Speed Aneroid pressure h: 900

: 97.0...99.0 1000 : (95.0...101.0) cm3 : 3.50 Del.quantity

Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 56...64

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.50

rpm : 1320...1330 Speed

2nd rack travel in: 4.00

: 1385...1415 Speed rpm 4th rack travel in: 1450 rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 22...30

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 5.50...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version Setting

Speed rpm : 500 Pressure hPa : -

Rack travel mm : 9.50...9.60

Measurement

1/min: 500 Speed

1st pressure hPa : 175

Rack travel in m: 10.00...10.10

2nd pressure hPa : 300

Rack travel in m: 10.80...11.10

3rd pressure hPa : 900

Rack travel in m: 11.50...11.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 rpm : 750

Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0)

cm3 : 5.00Spread

1000 s: (7.0)

Ameroid pressure h: rpm_ : 500 Speed

Del.quantity cm3/: 48.0...50.0

1000 s: (46.0...52.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.50

rpm : 1320...1330 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm: 350 Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 8.0...12.0

1000 s: (6.0...14.0)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

H07

Note remarks

Test sheet : MB 6,0 0 90 : 01.06.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 064A

Injection pump

Pump designation: PES6MW100/720RS1129

: 0 413 406 121 EP type number

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 095 Governer no.

Customer-spec. information Customer : MB-NFZ

: DM 366 LA Engine

: 132.0 : 2600 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 8.6...8.8

100 s: (8.4...9.0)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 0.8...1.2

100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

Aneroid pressure h: 900

: 86.5...88.5 1000 : (84.5...90.5) cm3 : 3.50 1000 : (6.00) Del.quantity

Spread

RATED SPEED

1st version

Control lever

position degrees: 56...64

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.80

rpm : 1230...1240 Speed

2nd rack travel in: 4.00

rpm : 1285...1315 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed

LOW IDLE 1 Control Lever

position degrees: 22...30 Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 5.6

Testina:

rpm : 100 Speed Minimum rack trave: 7.60 Speed rpm : 350 Rack travel in mm : 5.50...5.70

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

TORQUE CONTROL

Dimension a mm : 1.60

Torque control curve - 1st version

1st speed rpm : 1200 Rack travel in m: 10.80...10.90

rpm : 700 2nd speed

Rack travel in m: 12.30...12.40

rpm : 850 3rd speed

Rack travel in m: 11.80...11.90

4th speed rpm : 650

Rack travel in m: 12.40...12.50

Aneroid/Altitude Compensator Test

1st version Setting

Speed : 500 rpm Pressure hPa : -

: 9.50...9.60 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 175

Rack travel in m: 10.00...10.10

2nd pressure hPa : 300
Rack travel in m: 11.20...11.50
3rd pressure hPa : 900

Rack travel in m: 12.40...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900

Speed rpm : 700 Del.quantity cm3/: 97.5...100.5

1000 s: (95.0...103.0)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -: 500 Speed rpm

Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1230...1240 Speed

STARTING FUEL DELIVERY

rum : 100 Speed

Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 8.0...12.0 1000 s: (6.0...14.0)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Test hydr. locking device for starting

with 500...1000 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 48 Edition : 16.08.90 : 07.02.89 Replaces : ISO-4113 Test oil

Combination no. : 0 403 476 065

Injection pump

Pump designation : PES6MW100/720RS1129-

EP type number : 0 413 406 140

Governor

Governor design. : RSV350...1300MW0A331

: 0 420 085 096 Governer no.

Customer-spec. information Customer : MB-NFZ

Engine : OM 366 LA

: 150.0 1st version kW : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: U 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 11.20...11.30

Del.quantity cm3/: 9.3...9.5

100 s: (9.1...9.7)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.9...1.3

100 s: (0.7...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 6.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1280 Speed Aneroid pressure h: 900

Del.quantity : 95.0...97.0)
Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 58...66

Setting point:

rom Rack travel in mm: 0.6

Testing:

1st rack travel in: 10.20

: 1320...1330 Speed וחסיו

2nd rack travel in: 4.00

Speed rom

Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 6.0

Testina:

Speed rpm : 100 Minimum rack trave: 7.60 rpm : 350 Speed

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude Compensator Test

1st version

Setting

Speed : 500 rom Pressure hPa : -

Rack travel mm : 9.20...9.30

Measurement

1/min: 500 Speed

1st pressure hPa : 175

Rack travel in m: 9.80...9.90

2nd pressure hPa : 300

Rack travel in m: 10.80...11.10 3rd pressure hPa : 900

Rack travel in m: 11.20...11.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900 : 750 Speed COM

Del.quantity cm3/: 83.0...87.0 1000 s: (81.0...89.0)

cm3 : 5.00 Spread 1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed rom

Del.quantity cm3/: 46.0...48.0 1000 s: (44.0...50.0)

BREAKAWAY

: 1385...1415

4th rack travel in: 1450

rpm : 0.30...1.70

1st version

1mm rack travel less than

full load rack tr: 10.20

Speed rpm : 1320...1330

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 88.0...98.0

1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 9.0...13.0

1000 s: (7.0...15.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Test hydr. Locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 72 Edition : 16.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 072

Injection pump

Pump designation : PES6MW100/720RS1172-

1

EP type number : 0 413 406 166

Governor

Governor design. : RSV350...1300MW0A329

-5

Governer no. : 0 420 085 119

Customer—spec. information Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 184.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60

: (3.45...3.65) Rack travel in mm : 19.00...21.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1280

Rack travel in mm : 15.40...15.50

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm3 : 0.3 100 s: (0.5)

100 3. (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm: 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1500

Del.quantity : 122.0...124.0 1000 : (120.0...126.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Setting point:

Speed rpm : 800 Rack travel in mm : 0.6

Testing:

1st rack travel in: 14.40

rpm : 1330...1340 Speed

2nd rack travel in: 4.00

rpm : 1420...1450 Speed

4th rack travel in: 1580

rpm : 0.30...1.70Speed

LOW IDLE 1 Control lever

position degrees: 17...25

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.0

Testina:

rpm : 100 Speed Minimum rack trave: 19.00

rpm : 350Speed

Rack travel in mm : 5.90...6.10

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed : 500 rom

Pressure hPa : -

: 11.00...11.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 450

Rack travel in m: 12.90...13.10

2nd pressure hPa : 650

Rack travel in m: 13.90...14.10 3rd pressure hPa : 1500

Rack travel in m: 15.40...15.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500 : 800 Speed

rpm Del.quantity cm3/: 113.5...116.5 1000 s: (111.0...119.0)

cm3 : 5.00 Spread

1000 s: (7.0)

Aneroid pressure h: -

: 500 Speed וחכורו

Del.quantity cm3/: 33.0...35.0 1000 s: (31.0...37.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.40

rpm : 1330...1340 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 105.0...115.0

1000 s: (102.0...118.0)

LOW IDLE

Speed rpm: 350 Rack travel in mm: 5.90...6.10 Del.quantity cm3/: 10.0...14.0

1000 s: (7.5...16.5)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

Test hydr. locking device for starting

with 500...1000 hPa air pressure.

Rack travel in mm : 9.00...12.00 BOSCH INJ. PUMP TEST SPECIFICATIONS Firing order : 1-5-3-6-2-4 Note remarks Test sheet : RVI 6,0 E Edition : 06.07.90 Phasina : 0-60-120-180-240-300 Replaces : ISO-4113 Tolerance + - ° : 0.50 (0.75) Test oil Combination no. : 0 403 476 073 BASIC SETTING Injection pump 1st speed rpm: 900 Pump designation : PES6MW80/320RS1104-1 Rack travel in mm : 10.20...10.30 EP type number : 0 413 486 004 Governor Del.guantity cm3/: 5.3...5.5 : RSV300...1450MW0A801 Governor design. 100 s: (5.1...5.7) : 0 420 085 067 Governer no. Spread cm3 : 0.2Customer-spec. information Customer : RVI 100 s: (0.4) : 797 NFA Engine 2nd speed rpm : 300.0 Rack travel in mm : 5.10...5.80 Del.quantity cm3/: 1.2...1.5 : 89.0 1st version kW : 2900 Rated speed 100 s: (1.1...1.7) cm3 : 0.2TEST BENCH REQUIREMENTS Spread 100 s: (0.3) Test oil inlet temp. °C GUIDE SLEEVE POSITION : 38...42 Control-lever position Overflow valve Degree: -3 rpm : 800 : 2 417 413 028 Speed Rack travel in mm : 0.30...1.00 Inlet press., bar: 1.50 FULL LOAD DELIV. AT FULL LOAD STOP Test nozzle holder : 0 681 343 009 1st version assembly rpm : 900 : 53.0...55.0 Speed Del.quantity Open ind 1000 : (51.0...57.0) : 173...176 pressure, bar cm3 : 2.50 1000 : (4.00) Spread Test lines : 1 680 750 008 RATED SPEED Outside diameter 1st version x Wall thickness : 6.00x2.00x600 Control lever x Length mm position degrees: 56...64 (A) Injection pump setting values Insp. values in parentheses Setting point: Set equal delivery quant. Speed : 800 Rack travel in mm: 0.6 per values BEGINNING OF DELIVERY Testing: Test pressure, bar: 30...32 1st rack travel in: 7.90

rpm : 1525...1535

rpm : 1610...1640

Speed

Speed

2nd rack travel in: 4.00

Prestroke mm

: 1.75...1.85

: (1.70...1.90)

rpm : 0.30...1.70 Speed LOW IDLE 1 Control Lever position degrees: 29...37 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 5.5 Speed rpm Rack travel in mm : 5.10...5.80 Speed rpm : 250 Maximum rack trave: 7.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 900 2nd speed : 1450 rpm Rack travel in m: 8.80...9.00 : 1050 3rd speed COM Rack travel in m: 9.80...10.00 rpm : 1170 4th speed Rack travel in m: 9.30...9.70 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 1450 Del.quantity cm3/ : 53.0...55.0 1000 s: (51.0...57.0) cm3 : 3.50Spread 1000 s: (4.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 7.90 : 1525...1535 Speed rom STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 75.0...85.0 1000 s: (72.0...88.0) LOW IDLE Speed rpm : 300 Rack travel in mm : 5.10...5.80 Del.quantity cm3/ : 12.5...15.5 1000 s: (11.0...17.0) Spread cm3 : 2.001000 s: (3.50) Remarks:

H15

4th rack travel in: 1700

Test hydr. Locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MAN 7,2 Z Edition : 19.06.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 074B

Injection pump

Pump designation : PES6MW100/32DRS1183

EP type number : 0 413 406 169

Governor

: RSV300...900MW1AV189 Governor design.

: 0 420 085 ... Governer no.

Cust. part no. : 2-7938B

Customer-spec. information Customer : MAN

Engine : 00826LE20

1st version kW : 141.0 : 1800 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 681 901 101 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.00...3.10 : (2.95...3.15)

Rack travel in mm : 9.00...12.00 : 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 15.6...15.8

100 s: (15.4...16.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.7...6.4 Del.quantity cm3/: 3.0...3.4

100 s: (2.8...3.6)

cm3 : 0.6 Spread

100 s: (0.9)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

Del.quantity : 156.0...158.0 1000 : (154.0...160.0)

: 3.50 Spread cm3: (6.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 34...42

Setting point:

Speed : 800 rpm Rack travel in mm : 0.6

Testina: 1st rack travel in: 12.80 Speed rpm : 900...905 * 2nd rack travel in: 4.00 rpm : 937...950 Speed 4th rack travel in: 1100 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 14...22 Setting point w/out bumper spring : 300 Speed rom Rack travel in mm: 6.0 Speed rpm : 300
Rack travel in mm : 5.70...6.40
Rack travel in mm : 2.00
Speed rpm : 310...370 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.80 Speed rpm : 900...905 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 125.0...135.6 1000 s: (122.0...138. HIGH IDLE 1st version Speed rom Rack travel in mm: 4.00 LOW IDLE rpm : 300 Speed Rack travel in mm : 5.70...6.40 Del.quantity cm3/: 30.0...34.0 1000 s: (28.5...36.5) cm3 : 6.00 1000 s: (9.00) Spread Remarks: Start-of-delivery mark is at start of delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : MB 6,0 D 75 Test sheet : 06.09.90 Edition Replaces : 19.03.90 Test oil : ISO-4113 Combination no. : 0 403 476 075 Injection pump Pump designation : PES6MW100/720RS1130 : 0 413 406 122 EP type number Governor Governor design. : RSV350...750MW0A336-: 0 420 085 124 Governer no. Customer-spec. information : MB-NFZ Customer : OM366A Engine 1st version kW : 84.0 : 1500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Openina pressure, bar : 172...175 : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 Prestroke mm : 3.70...3.80 : (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina : 0.50 (0.75) Tolerance + - ° BASIC SETTING 1st speed rpm: 700 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 8.0...8.2 100 s: (7.8...8.4) Spread cm3 : 0.3100 s: (0.6) rpm : 350 2nd speed Rack travel in mm: 6.5...6.8 Del.quantity cm3/: 0.9...1.3 100 s: (0.7...1.5) Spread cm3 : 0.3 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...1.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 700 Del.quantity : 80.0...82.0 1000 : (78.0...84.0) : 3.50 Spread cm3 1000 RATED SPEED 1st version Control lever position degrees: 24...32 Setting point: Speed rpm Rack travel in mm: 0.6 Testing: 1st rack travel in: 11.00 Speed rpm : 750...755 * 2nd rack travel in: 4.00 rpm : 775...788 Speed 4th rack travel : 800

rpm : 0.3...1.70Speed

LOW IDLE 1 Control lever

position degrees: 11...19

Setting point w/out bumper spring

: 350 Speed rom Rack travel in mm: 6.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350

Rack travel in mm : 6.50...6.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00 : 750...755 Speed rom

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350
Rack travel in mm : 6.50...6.80
Del.quantity cm3/ : 9.0...13.0
1000 s: (7.0...15.0)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Observe VDT-I-420/120

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : MB 6,0 D 97

: 31.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 076

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RSV350...1300MW0A2-1

: 0 420 085 125 Governer no.

Customer-spec. information Customer : MB-NF7

: DM 366 LA Engine

1st version kW : 142.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening 1

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm : 13001st speed

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 6.2...6.9 Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

Del.quantity : 95.0....99.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 106...114

Setting point:

Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.00 Speed rpm : 1340...1345 *

2nd rack travel in: 4.00

rpm : 1397...1410 Speed

H20

3rd rack travel in: 4.00

rpm : 1460...1490 Speed

4th rack travel in: 1600

rpm : 0.30...1.70 Speed 5th rack travel in: 1335...1350 Speed rpm : 12.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.5

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 6.20...6.90

Rack travel in mm : 2.00

: 420...480 Speed rom

Aneroid/Altitude Compensator Test

1st version

Setting

rpm : 500 Speed Pressure hPa : -

: 11.60...11.70 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : 300 Rack travel in m: 12.10...12.20

2nd pressure hPa : 360

Rack travel in m: 12.60...12.90

3rd pressure hPa : 1000

Rack travel in m: 13.00...13.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000 rpm : 750 Speed

Del.quantity cm3/: 83.0...86.0

1000 s: (80.5...88.5)

cm3 : 5.00Spread

1000 s: (7.0)

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 50.0...52.0

1000 s: (48.0...54.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.00

rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 85.0...95.0

1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0

1000 s: (6.5...15.5)

cm3 : 3.50Spread

1000 s: (5.00)

Remarks:

Test hydr. Locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

: MB 6,0 F : 16.08.90 Test sheet Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 076

Injection pump

Pump designation : PES6MW100/720RS1120-

EP type number : 0 413 406 172

Governor

Governor design. : RSV350...1300MW0A2-1

: 0 420 085 125 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 LA Engine

1st version kW : 142.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

: 172...175 pressure, bar

Test Lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm: 6.2...6.9 Del.quantity cm3/: 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm: 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1300 Speed Aneroid pressure h: 1000

: 95.0...97.0 Del.quantity 1000 : (93.0...99.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 12.00

rpm : 1340...1345 *Speed

2nd rack travel in: 4.00

rpm : 1397...1410 Speed 3rd rack travel in: 4.00 : 1460...1490 Speed rpm 4th rack travel in: 1600 rpm : 0.30...1.70 Speed 5th rack travel in: 1335...1350 : 12.00 Speed rom LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 Speed : 420...480 rom Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm hPa : -Pressure : 11.60...11.70 Rack travel mm Measurement 1/min : 500Speed 1st pressure hPa : 300 Rack travel in m: 12.10...12.20 2nd pressure hPa : 360 Rack travel in m: 12.60...12.90 3rd pressure hPa : 1000 Rack travel in m: 13.00...13.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 rpm : 750 Speed Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0) BREAKAWAY

1mm rack travel less than

full load rack tr: 12.00

rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 85.0...95.0 1000 s: (92.0...98.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0

1000 s: (6.5...15.5) cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

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1st version

Note remarks

: MB 6,0 D 74 Test sheet : 06.09.90 Edition : 01.02.90 Replaces

Test oil : ISO-4113

: 0 403 476 078 Combination no.

Injection pump

Pump designation: PES6MW100/720RS1129

EP type number : 0 413 406 121

Governor

Governor design: : RSV350...750Mw0A336

: 0 420 085 127 Governer no.

Customer-spec. information : DB-NKW Customer

Engine : 0M566LA

: 94.0 1st version kW : 1500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1- 5- 3- 6- 2- 4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 700

Rack travel in mm : 12.50...12.60

Del.quantity cm3/: 8.5...8.7

100 s: (8.3...8.9)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350

Rack travel in mm : 5.8...6.8 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 2.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 700 Speed

: 85.0...87.0 Del.quantity 1000 : (83.0...89.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 74...82

Setting point:

Speed rpm Rack travel in mm : 0.6

Testing:

1st rack travel in: 11.50

rpm : 750...755 * Speed

2nd rack travel in: 4.00

rpm : 775...788 Speed

4th rack travel in: 850

rpm : 0.30...1.70 Speed

LOW IDLE 1 Control lever

position degrees: 60..68

Setting point w/out bumper spring

rpm : 350 Speed Rack travel in mm: 6.3

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed

Rack travel in mm : 5.80...6.80

SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.50 rpm : 750...755 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 88.0...98.0 1000 s: (85.0...101.0)

LOW IDLE

Speed rpm : 350

Rack travel in mm : 5.80...6.80 Del.quantity cm3/: 9.0...13.0

1000 s: (6.5...15.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Observe VDT-I-420/120

* Read off speed set under 1. Add 25...33 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : MB 6,0 H Edition : 19.03.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 079

Injection pump

Pump designation : PES6MW100/720RS1191

: 0 413 406 179 EP type number

Governor

: RSV750...1250MW0A325 Governor design.

: 0 420 085 129 Governer no.

Customer-spec. information : MB-NFZ Customer

: OM 366 LA Engine

: 162.0 : 2500 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1230 1st speed

Rack travel in mm : 13.90...14.00

Del.guantity cm3/: 11.4...11.6

100 s: (11.2...11.8)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 750.0 2nd speed Rack travel in mm : 5.2...6.0 Del.quantity cm3/ : 1.5...1.9 100 s: (1.2...2.1)

cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position learee: -3

rpm : 800

Rack travel in mm: 0.30...1.00

Governor spring pre-tension Click setting x : 2.30

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1230 Speed

: 114.0...116.0 Del.quantity 1000 : (112.0...118.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 88...96

Setting point:

Speed : 800 rpm Rack travel in mm: 0.6

1st rack travel in: 12.90

rpm : 1270...1275 * Speed 2nd rack travel in: 4.00 rpm : 1295...1310 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 72...80 Setting point w/out bumper spring

rpm : 750 Rack travel in mm: 5.6

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 Speed rpm : 750 Rack travel in mm : 5.20...6.00

SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/ : 106.0...109.0 1000 s: (103.5...111.5)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.90

rpm : 1270...1275 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 95.0...105.0 1000 s: (92.0...108.0)

LOW IDLE

Speed rpm : 750 Rack travel in mm : 5.20...6.00 Del.quantity cm3/: 15.0...19.0 1000 s: (12.5...21.5)

cm3 : 3.50

Spread 1000 s: (5.00)

Remarks:

* Read off speed set under 1. Add 25...35 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : LIE 8,4 C : 17.05.90 Edition : 05.03.90 Replaces Test oil : ISO-4113 Combination no. : 0 403 476 081 Injection pump Pump designation : PES6MW100/720RS1196 : 0 413 406 184 EP type number Governor Governor design. : RSV350...1050MW1A338 : 0 420 085 138 Governer no. Customer-spec, information Customer : LIEBHERR Engine : D 916 T 1st version kW : 170.0 Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 049 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly **Opening** : 172...175 pressure, bar Test Lines : 1 680 750 008 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 30...32 : 3.40...3.50

: (3.35...3.55)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) BASIC SETTING rpm : 10501st speed Rack travel in mm : 11.10...11.20 Del.quantity cm3/: 13.3...13.5 100 s: (13.1...13.7) cm3 : 0.3Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm: 4.6...5.2 Del.quantity cm3/: 1.5...1.9 100 s: (1.2...2.1) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 5.00 FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050Aneroid pressure h: 750 : 133.0...135.0 Del.quantity 1000 : (131.0...137.0) Spread cm3 : 3.50 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 98...106 Setting point: : 800 Speed rpm Rack travel in mm: 0.6

1st rack travel in: 10.10

Prestroke mm

rpm : 1070...1080 Speed 2nd rack travel in: 4.00 rpm : 1110...1140 Speed 4th rack travel in: 1200 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 350 Rack travel in mm: 4.9 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 4.60...5.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rom hPa : Pressure : 10.50...10.60 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 10.70...10.80 2nd pressure hPa : 750 Rack travel in m: 11.10...11.20 FUEL DELIVERY CHARACTERISTICS 1st version Aneroic pressure h: 750 Speed rpm : 500 Del.quantity cm3/: 125.0...128.0 1000 s: (122.5...130.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: 750 : 800 Speed rom Del.quantity cm3/: 132.0...135.0 1000 s: (129.5...137.5) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 115.5...117.5 1000 s: (113.5...119.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.10 Speed rpm : 1070...1080

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Remarks:

Check electrically unlatched starting fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65) Rack travel in mm : 9.00...12.00 Note remarks : 1-5-3-6-2-4 Firing order Test sheet Edition : MAN 7,2 X 1 : 31.07.90 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 : 0 403 476 082 Tolerance + - ° : 0.50 (0.75) Combination no. Injection pump BASIC SETTING Pump designation : PES6MW100/320RS1180-1st speed rpm: 1100 : 0 413 406 193 EP type number Rack travel in mm : 10.10...10.20 Governor Governor design. : RSV300...1100MW0A339 Del.quantity cm3/: 10.1...10.3 : 0 420 085 139 Governer no. 100 s: (9.9...10.5) Cust. part no. : 3-7062 cm3 : 0.3Spread Customer-spec. information : MAN Customer 100 s: (0.6) : D0826LUE51/160 Engine rpm : 300.0 2nd speed Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.6...1.0 : 118.0 1st version kW : 2200 Rated speed 100 s: (0.4...1.2) TEST BENCH REQUIREMENTS cm3 : 0.3Spread 100 s: (0.5) Test oil inlet temp. °C : 38...42 GUIDE SLEEVE POSITION Control-lever position Overflow valve Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...1.00 : 1 417 413 047 Inlet press., bar: 1.50 Governor spring pre-tension Click setting x : 4.70Test nozzle holder : 0 681 343 009 assembly FULL LOAD DELIV. AT FULL LOAD STOP Openina : 172...175 pressure, bar 1st version Speed rpm : 1100 Aneroid pressure h: 1000 : 1 680 750 008 : 101.0...103.0 Test lines Del.quantity 1000 : (99.0...105.0) : 3.50 Outside diameter cm3 Spread 1000 : (6.00) x Wall thickness : 6.00x1.50x600 x Lenath mm RATED SPEED (A) Injection pump setting values 1st version Insp. values in parentheses Control lever Set equal delivery quant. position degrees: 93...101 per values ____

BEGINNING OF DELIVERY Test pressure, bar: 30...32

Speed rpm: 800 Rack travel in mm: 0.6

Setting point:

Testing: 1st rack travel in: 9.10 rpm : 1145...1160 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1350 rom : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 70...78 Setting point w/out bumper spring : 300 rpm Rack travel in mm: 6.0 Testina: Speed : 100 rpm Minimum rack trave: 19.00 : 300 Speed rpm Rack travel in mm : 5.90...6.10 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 TORQUE CONTROL : 0.70 Dimension a mm Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 10.10...10.20 rpm : 800 2nd speed Rack travel in m: 10.80...10.90 3rd speed rpm : 600 Rack travel in m: 10.80...10.90 Aneroid/Altitude Compensator Test 1st version Settina Speed : 500 rpm hPa Pressure : 9.00...9.10 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 220 Rack travel in m: 9.30...9.40 2nd pressure hPa : 380 Rack travel in m: 10.00...i0.30 3rd pressure hPa : 1000 Rack travel in m: 10.80...10.90 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000

J03

Speed rpm : 800 Del.quantity cm3/ : 111.0...113.0 1000 s: (109.0...115.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: 1000 Speed rpm: 600 Del.quantity cm3/: 108.0...111.0 1000 s: (105.5...113.5) Aneroid pressure h: -Speed rpm : 500 Del.quantity cm3/ : 70.0...72.0 1000 s: (68.0...74.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 9.10 : 1145...1160 Speed rom STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 120.0...130.0 1000 s: (117.0...133.0)

LOW IDLE

Remarks:

: MAN #3-7062

Start-of-delivery mark is at start of delivery of cylinder 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : MAN 7,2 Y Edition : 31.07.90

Replaces

: ISO-4113 Test oil

: 0 403 476 083 Combination no.

Injection pump

Pump designation : PES6MW100/320RS1200-

: 0 413 406 194 EP type number

Governor

Governor design. : RSV300...1100MW0A339

: 0 420 085 140 Governer no.

: 3-7063 Cust. part no.

Customer-spec. information

: MAN Customer

: D0826LE52/LUE51 Engine

1st version kW : 147.0 : 2200

Rated speed TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 008

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm : (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 13.5...13.7

100 s: (13.3...13.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 0.6...1.0

100 s: (0.4...1.2) cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Aneroid pressure h: 1000

: 135.0...137.0 Del.quantity 1000 : (133.0...139.0)

: 3.50 cm3 Spread : (6,00) 1000

RATED SPEED

1st version

Control lever

position degrees: 96...104

Setting point:

: 800 Speed rom

Rack travel in mm: 0.6 1st version Aneroid pressure h: 1000 Testina: : 1000 1st rack travel in: 11.00 Speed rpm Del.quantity cm3/: 140.0...142.0 1000 s: (138.0...144.0) Speed rpm : 1145...1160 2nd rack travel in: 4.00 cm3 : 5.00Speed : 1220...1250 Spread COM 1000 s: (7.0) 4th rack travel in: 1380 Aneroid pressure h: 1000 : 0.30...1.70 Speed rom : 800 Speed rpm Del.quantity cm3/: 154.0...157.0 1000 s: (151.5...159.5) LOW IDLE 1 Control Lever Aneroid pressure h: 1000 position degrees: 72...80 Speed rpm : 600 Del.quantity cm3/ : 154.0...157.0 Setting point w/out bumper spring : 300 rpm 1000 s: (151.5...159.5) Rack travel in mm: 6.0 Aneroid pressure h: rpm : 500 Testing: Speed Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0) Speed : 100 nom Minimum rack trave: 19.00 Speed rpm : 300 Rack travel in mm : 5.90...6.10 BREAKAWAY SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 1st version 1mm rack travel less than TORQUE CONTROL Dimension a mm : 1.10 full load rack tr: 11.00 Torque control curve - 1st version 1st speed rpm : 1100 Rack travel in m: 12.00...12.10 rpm : 1145...1160 Speed STARTING FUEL DELIVERY : 1000 2nd speed rpm Rack travel in m: 12.50...12.60 : 100 3rd speed rpin : 800 Speed rpm Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in m: 13.10...13.20 4th speed rpm : 600 Rack travel in m: 13.10...13.20 LOW IDLE Aneroid/Altitude Speed rpm : 300 Rack travel in mm : 5.90...6.10 Compensator Test Del.quantity cm3/: 6.0...10.0 1000 s: (4.0...12.0) 1st version cm3 : 3.50 Setting Spread 1000 s: (5.50) : 500 Speed man hPa : Pressure 9.00...9.10 Rack travel mm Remarks: : MAN #3-7063 Measurement 1/min: 500 Start-of-delivery mark is at start of Speed delivery of cylinder 1 1st pressure hPa : 210 Rack travel in m: 9.30...9.40
2nd pressure hPa : 700
Rack travel in m: 11.90...12.20
3rd pressure hPa : 1000 Rack travel in m: 13.10...13.20

FUEL DELIVERY CHARACTERISTICS

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm Note remarks Test sheet : MAN 7,2 X : 03.08.90 Edition Replaces : ISO-4113 Test oil Phasing : 0 403 476 084 Combination no. Injection pump Pump designation : PES6MW100/320RS1180-BASIC SETTING : D 413 406 193 EP type number 1st speed Governor : RSV300...1100MW0A339 Governor design. : 0 420 085 141 Governer no. : 3-7065 Cust. part no. Spread Customer-spec. information Customer : MAN : D0826TUE51/130 Engine : 96.0 1st version kW : 2200 Rated speed TEST BENCH REQUIREMENTS Spread Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Speed Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening pressure, bar : 172...175 1st version Speed : 1 680 750 008 Test lines Del.quantity Outside diameter Spread cm3 x Wall thickness : 6.00X1.50X600 x Length mm RATED SPEED

: 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) rpm: 1100 Rack travel in mm : 8.50...8.60 Del.guantity cm3/: 8.1...8.3 100 s: (7.9...8.5) cm3 : 0.3100 s: (0.6) 2nd speed rpm : 300.0 Rack travel in mm : 5.9...6.1 Del.quantity cm3/: 0.6...1.0 100 s: (0.4...1.2) cm3 : 0.3100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...1.00 Governor spring pre-tension Click setting x : 4.50FULL LOAD DELIV. AT FULL LOAD STOP rpm : 1100 Aneroid pressure h: 1000 : 81.0...83.0 1000 : (79.0...85.0) : 3.50 1000 : (6.00) 1st version Control lever position degrees: 92...100

: 800

Setting point:

rpm

Speed

BEGINNING OF DELIVERY

per values

Test pressure, bar: 30...32

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Rack travel in mm: 0.6 Aneroid pressure h: 1000 : 1000 Speed rpm Del.quantity cm3/: 87.0...89.0 Testina: 1000 s: (85.0...91.0) 1st rack travel in: 7.50 cm3 : 5.00rpm : 1145...1160 Speed Spread 1000 s: (7.0) 2nd rack travel in: 4.00 rpm : 1170...1200 Aneroid pressure h: 1000 Speed 4th rack travel in: 1350 : 800 Speed rpm Del.quantity cm3/: 91.0...94.0 1000 s: (88.5...96.5) Aneroid pressure h: 1000 rpm : 0.30...1.70 Speed LOW IDLE 1 Speed rpm: 600 Del.quantity cm3/: 83.0...86.0 Control lever position degrees: 69...77 1000 s: (80.5...88.5) Setting point w/out bumper spring rpm : 300 Aneroid pressure h: rpm : 500 Rack travel in mm: 6.0 Speed Del.quantity cm3/: 70.0...72.0 1000 s: (68.0...74.0) Testing: : 100 Speed rpm Minimum rack trave: 19.00 : 300 BREAKAWAY Speed rpm Rack travel in mm : 5.90...6.10 1st version 1mm rack travel less than SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 full load rack tr: 7.50 rpm : 1145...1160 TORQUE CONTROL Speed Dimension a mm : 1.00 Torque control curve - 1st version STARTING FUEL DELIVERY 1st speed rpm : 1100 Rack travel in m: 8.50...8.60 2nd speed rpm : 1000 Speed rpm : 100 Del.quantity cm3/: 120.0...130.0 1000 s: (117.0...133.0) Rack travel in m: 9.10...9.20 3rd speed rpm : 800 Rack travel in m: 9.50...9.60 4th speed rpm : 600 LOW IDLE Rack travel in m: 9.50...9.60 Speed rpm Rack travel in mm : 5.90...6.10 Aneroid/Altitude Del.guantity cm3/: 6.0...10.0 Compensator Test 1000 s: (4.0...12.0) cm3 : 3.50 Spread 1000 s: (5.50) 1st version Settina : 500 Remarks: Speed rom : MAN #3-7065 hPa : -Pressure : 9.00...9.10 Rack travel mm Start-of-delivery mark is at start of delivery of cylinder 1 Measurement 1/min: 500 Speed 1st pressure hPa : 170 Rack travel in m: 9.20...9.30 2nd pressure hPa : 1000 Rack travel in m: 9.50...9.60 FUEL DELIVERY CHARACTERISTICS 1st version

J07

Note remarks

Test sheet : MB 6,0 L : 16.08.90 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 476 085

Injection pump

Pump designation : PES6MW100/720RS1205

: 0 413 406 195 EP type number

Governor

: RSV350...1300MW0A329 Governor design.

: 0 420 085 142 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M 366 LA Engine

1st version kW : 184.0 : 2600 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.20...3.30

: (3.15...3.35)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 15.50...15.60

Del.quantity cm3/: 12.8...13.0

100 s: (12.6...13.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 6.3...6.5 Del.quantity cm3/: 1.0...1.4 100 s: (0.7...1.6) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280 Aneroid pressure h: 1200

: 128.0...130.0 Del.quantity 1000 : (126.0...132.0)

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 96...104

Setting point:

Speed man : 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 14.50 Speed rpm : 1330...1340 2nd rack travel in: 4.00 Speed : 1420...1450 rpm 4th rack travel in: 1580 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 65...73 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6.4 Testina: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 6.30...6.50 SET IDLE AUXILIARY SPRING Rack travel in mm : 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed rpm : 500 Pressure hPa : -Rack travel mm : 11.30...11.40 Measurement Speed $1/\min : 500$ 1st pressure hPa : 450 Rack travel in m: 12.70...12.90 2nd pressure hPa : 650 Rack travel in m: 13.90...14.10 3rd pressure hPa : 1200 Rack travel in m: 15.50...15.60 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1200 : 800 Speed man Del.quantity cm3/: 122.0...125.0 1000 s: (119.5...127.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 48.0...50.0 1000 s: (46.0...52.0)

1st version
1mm rack travel less than

full load rack tr: 14.50
Speed rpm : 1330...1340
STARTING FUEL DELIVERY

Speed rpm : 100

Speed rpm : 100 Del.quantity cm3/ : 110.0...120.0 1000 s: (107.0...123.0)

LOW IDLE

:

Remarks:

- -

J09

BREAKAWAY

Note remarks

Test sheet Edition : MB 6,0 H 2 : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 086

Injection pump

Pump designation : PES6MW100/720RS1191

: D 413 406 179 EP type number

Governor

Governor design. : RSV425...1000MW0A329

: 0 420 085 143 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M 366 LA Engine

1st version kW : 151.0 : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00X1.50X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 980

Rack travel in mm : 14.90...15.00

Del.quantity cm3/: 11.0...11.2

100 s: (10.8...11.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm : 6.3...6.5 Del.quantity cm3/: 0.9...1.3

100 s: (0.6...1.5)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 980 Speed Aneroid pressure h: 1000

Del.quantity : 170.0...114.0)

cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version Control lever

position degrees: 86...94

Setting point:

: 800 Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.90 rpm : 1030...1040 Speed 2nd rack travel in: 4.00 rpm : 1100...1130 Speed 4th rack travel in: 1250 rpm : 0.30...1.70Speed LOW IDLE 1 Control lever position degrees: 68...76 Setting point w/out bumper spring rpm : 425 Rack travel in mm: 6.4 Testina: : 100 Speed man Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 6.30...6.50 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 mqn hPa : -Pressure : 11.70...11.80 Rack travel mm Measurement 1/min: 500 Speed 1st pressure hPa : 200 Rack travel in m: 12.60...12.80 2nd pressure hPa : 350 Rack travel in m: 13.90...14.10 3rd pressure hPa : 1000 Rack travel in m: 14.90...15.00 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 600 Speed rom Del.quantity cm3/: 103.0...106.0 1000 s: (100.5...108.5) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: rpm : 500 Speed Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0)

1st version
1mm rack travel less than
full load rack tr: 13.90
Speed rpm : 1030...1040
STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Note remarks

: MB 6,0 D 77 : 16.08.90 : 02.10.89 Test sheet Edition Replaces Test oil : ISO-4113

Combination no. : 0 403 476 087

Injection pump

Pump designation : PES6NW100/720RS1144

: 0 413 406 138 EP type number

Governor

Governor design. : RSV350...1200MW0A341

: 0 420 085 145 Governer no.

Customer-spec. information Customer : MD-NF7

: 0M366A Engine

: 100.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 : (3.65...3.85) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

1st speed rpm: 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm3/: 6.9...7.1

100 s: (6.7...7.3)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0Rack travel in mm: 6.1...6.7 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4) Spread

cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 69.0...71.0 : (67.0...73.0) Del.quantity 1000

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 48...56

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.20

Speed rpm : 1240...1245 * 2nd rack travel in: 4.00

rpm : 1280...1293 Speed

3rd rack travel in: 4.00

rpm : 1300...1330 Speed

4th rack travel in: 1450

rpm : 0.30...1.70Speed 5th rack travel in: 1240...1255

rpm : 9.20Speed

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm: 6.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

170m : 350 Speed

Rack travel in mm : 6.10...6.70 Rack travel in mm : 2.00

rpm : 415...475 Speed

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 10.20...10.30

rpm : 800 2nd speed

Rack travel in m: 11.10...11.20

rpm : 900 3rd speed

Rack travel in m: 11.00...11.20

4th speed rpm : 1050

Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 69.0...71.0

1000 s: (67.0...73.0)

cm3 : 5.00 Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.20

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0) Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 6.10...6.70

Del.guantity cm3/: 9.0...11.0 1000 s: (6.0...14.0)

cm3 : 3.50 Spread

1000 s: (5.00)

Remarks:

* Read off speed set under 1.

Add 40...48 min-1 to this speed. The control-rod travel under 2. must be

attained with the calculated speed

profile.

Note remarks

Test sheet : MB 6,0 D 92 Edition : 16.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 088

Injection pump

Pump designation: PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RSV350...1300MW0A341

-1

Governer no. : 0 420 085 146

Customer-spec. information Customer : MB-NFZ

Engine : OM366A

1st version kW : 125.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6.00X1.50X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 7.2...7.4

100 s: (7.0...7.6)

Spread cm3:0.3

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6

Del.quantity cm3/: 0.9...1.1 100 s: (0.7...1.3)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...1.00

Common amaina una tanaisa

Governor spring pre-tension Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1300

Del.quantity : 72.0...74.0 1000 : (70.0...76.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 106...114

Setting point:

Speed rpm: 800 Rack travel in mm: 0.6

Testing:

1st rack travel in: 9.70

rpm : 1340...1345 * Speed 2nd rack travel in: 4.00 : 1380...1393 Speed rom 3rd rack travel in: 4.00 Speed : 1400...1430 rpm 4th rack travel in: 1450 : 0.30...1.70 Speed rpm 5th rack travel in: 1345...1360 : 9.70 Speed rom LOW IDLE 1 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Rack travel in mm : 2.00 : 445...505 Speed rpm TORQUE CONTROL Dimension a mm : 1.60 Torque control curve - 1st version rpm : 1300 1st speed Rack travel in m: 10.70...10.80 2nd speed rpm : 700 Rack travel in m: 12.30...12.40 3rd speed rpm : 825 Rack travel in m: 11.90...12.10 FUEL DELIVERY CHARACTERISTICS 1st version : 700 Speed rpm Del.quantity cm3/: 69.0...71.0 1000 s: (67.0...73.0) cm3 : 5.00Spread 1000 s: (7.0)

: 825 Speed rpm Del.quantity cm3/: 73.0...75.0 1000 s: (71.0...77.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

J15

: 350 Speed rpm

Rack travel in mm : 7.00...7.60 Del.quantity cm3/ : 9.0...11.0

1000 s: (7.0...13.0) cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

* Read off speed set under 1. Add 40...48 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

Note remarks

Test sheet : MB 6,0 D 93 Edition : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 089

Injection pump

Pump designation : PES6MW100/720RS1144

: 0 413 406 138 EP type number

Governor

: RSV350...1200Mw0A341 Governor design.

: 0 420 085 147 Governer no.

Customer-spec. information : MB-NFZ Customer

: 0M366A Engine

1st version kW : 115.0 : 2400 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening (

pressure, bar : 172...175

: 1 680 750 015 Test Lines

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 8.0...8.2

100 s: (7.8...8.4)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 350.0 Rack travel in mm : 7.0...7.6 Del.quantity cm3/: 0.9...1.1

100 s: (0.6...1.4)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 80.5...82.5 Del.quantity 1000 : (78.5...84.5) cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 99...107

Setting point: Speed rpm Rack travel in mm: 0.6

Testing:

1st rack travel in: 11.00

rpm : 1240...1245 * Speed

2nd rack travel in: 4.00

rpm : 1285...1298 Speed

3rd rack travel in: 4.00

Speed rpm : 1325...1355 4th rack travel in: 1450

rpm : 0.30...1.70Speed 5th rack travel in: 1240...1255

Speed rpm : 11.00

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 350 Rack travel in mm : 7.3

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 Speed rpm : 350 Rack travel in mm : 7.00...7.60

Rack travel in mm: 2.00

Speed : 445...505 rom

TORQUE CONTROL

Dimension a mm : 0.50

Torque control curve - 1st version

rpm : 1200 1st speed

Rack travel in m: 12.00...12.10

2nd speed rpm : 750

Rack travel in m: 12.50...12.60

3rd speed rpm : 1000

Rack travel in m: 12.10...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 74.5...76.5

1000 s: (72.5...78.5)

Spread cm3 : 5.00

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

rpm : 1240...1245 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 78.0...88.0

1000 s: (75.0...91.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350

Rack travel in mm : 7.00...7.60

Del.quantity cm3/: 9.0...11.0 1000 s: (6.0...14.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

* Read off speed set under 1. Add 45...53 min-1 to this speed. The

control-rod travel under 2. must be attained with the calculated speed

profile.

Note remarks

Test sheet : MB 6,0 D 94 Edition : 16.08.90

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 090

Injection pump

Pump designation : PES6MW100/720RS1144

EP type number : 0 413 406 138

Governor

Governor design. : RSV350...1200Mw1A341

: 0 420 085 148 Governer no.

Customer-spec. information Customer : MB-NF7

: 0M366A Engine

: 92.0 1st version kW Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina .

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter

x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values _

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.70...3.80 Prestroke mm

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1200 1st speed

Rack travel in mm : 9.80...9.90

Del.quantity cm3/: 6.2...6.4

100 s: (6.0...6.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed

Rack travel in mm : 6.3...6.9 Del.quantity cm3/ : 0.9...1.1 100 s: (0.6...1.4)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm : 800 Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 3.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1200 Speed

: 62.0...64.0 Del.quantity

1000 : (60.0...66.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Setting point:

: 800 Speed r pm Rack travel in mm : 0.6

1st rack travel in: 8.80

rom : 1235...1240 * Speed

2nd rack travel in: 4.00

rpm : 1270...1283 Speed

3rd rack travel in: 4.00

: 1300...1330 rpm Speed

4th rack travel in: 1450

rpm : 0.30...1.70 Speed 5th rack travel in: 1245...1260

rpm : 8.80 Speed

LOW IDLE 1

Setting point w/out bumper spring

: 350 rpm Rack travel in mm: 6.6

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

rpm : 350 Speed

Rack travel in mm : 6.30...6.90 Rack travel in mm : 2.00

Speed rom: 415...475

TORQUE CONTROL

Dimension a mm : 0.90

Torque control curve - 1st version

1st speed rpm : 1200

Rack travel in m: 9.80...9.90

ipm : 800 2nd speed

Rack travel in m: 10.70...10.80

: 950 3rd speed rpm

Rack travel in m: 10.10...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

: 800 Speed rpm

Del.quantity cm3/: 61.0...63.0 1000 s: (59.0...65.0)

cm3 : 5.00Spread

1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.80

rom : 1235...1240 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 78.0...88.0 1000 s: (75.0...91.0)

LOW IDLE

J19

Speed rpm : 350 Rack travel in mm : 6.30...6.90 Del.quantity cm3/: 9.0...11.0

1000 s: (6.0...14.0)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

* Read off speed set under 1.

Add 35...43 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed

profile.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: MB 6,0 D 95 Test sheet : 16.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 091

Injection pump

Pump designation : PES6MW100/720RS1131

: 0 413 406 123 EP type number

Governor

Governor design. : RSV350...1300MW0A342

: 0 420 085 149 Governer no.

Customer-spec. information Customer : MB-NFZ

: OM 366 LA Engine

1st version kW : 150.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

: 1 680 750 015 Test lines

Outside diameter x Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80

: (3.65...3.85)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 12.60...12.70

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.0 2nd speed Rack travel in mm: 6.2...6.9 Del.quantity cm3/: 1.0...1.2

100 s: (0.6...1.5) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

: 100.0...102.0 Del.quantity 1000 : (98.0...104.0)

: 3.50 cm3

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 44...52

Setting point:

Speed rpm : 800 Rack travel in mm: 0.6

1st rack travel in: 11.60

rpm : 1340...1345 * Speed 2nd rack travel in: 4.00 : 1387...1400 Speed rpm 3rd rack travel in: 4.00 : 1420...1450 Speed rpm 4th rack travel in: 1600 rom : 0.30...1.70 Speed 5th rack travel in: 1335...1350 : 11.60 Speed rom LOW IDLE 1 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6.5 Testing: Speed : 100 rpm Minimum rack trave: 19.00 : 350 mgn Rack travel in mm : 6.20...6.90 Rack travel in mm: 2.00 Speed : 420...480 rom Aneroid/Altitude Compensator Test 1st version Setting Speed : 500 rom hPa : 250 Pressure Rack travel mm : 11.30...11.40 Measurement $1/\min : 500$ Speed 1st pressure hPa : -Rack travel in m: 10.80...10.90 2nd pressure hPa : 400 Rack travel in m: 12.10...12.40 3rd pressure hPa : 1000 Rack travel in m: 12.60...12.70 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 600 Del.quantity cm3/: 86.5...89.5 1000 s: (84.0...92.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 53.0...55.0 1000 s: (51.0...57.0)

1st version 1mm rack travel less than full load rack tr: 11.60 rpm : 1340...1345 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 83.0...93.0 1000 s: (80.0...96.0) LOW IDLE Speed : 350 rom Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: profile.

* Read off speed set under 1. Add 47...55 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed

Test hydr. locking device for starting with 500...1000 hPa air pressure.

Note remarks

Test sheet : MB 6,0 D 96 Edition : 16.08.90

Replaces : -

Test oil : ISO-4113

Combination no. : 0 403 476 092

Injection pump

Pump designation : PES6MW100/720RS1120

EP type number : 0 413 406 112

Governor

Governor design. : RSV350...1300MWOA342

-1

Governer no. : 0 420 085 150

Customer—spec. information Customer : MB—NFZ

Engine : OM 366 LA

1st version kW : 142.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter X Wall thickness

x Length mm : 6.00x1.50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - * : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1300

Rack travel in mm : 13.00...13.10

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3: 0.3

100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 6.2...6.9
Del.quantity cm3/ : 1.0...1.2

100 s: (0.6...1.5)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION
Control-lever position

Degree: -3 rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...1.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300 Aneroid pressure h: 1000

Del.quantity : 95.0...97.0 1000 : (93.0...99.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 106...114

Setting point:

Speed rpm : 800 Rack travel in mm : 0.6

Testing:

1st rack travel in: 12.00

Speed rpm : 1340...1345 *

2nd rack travel in: 4.00

rpm : 1397...1410 Speed 3rd rack travel in: 4.00 : 1460...1490 Speed rpm 4th rack travel in: 1600 Speed rpm : 0.30...1.705th rack travel in: 1335...1350 Speed rpm : 12.00LOW IDLE 1 Setting point w/out bumper spring rpm Rack travel in mm: 6.5 Testina: : 100 Speed rom Minimum rack trave: 19.00 : 350 rpm Rack travel in mm : 6.20...6.90 Rack travel in mm : 2.00 : 420...480 Speed rpm Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -: 11.60...11.70 Rack travel mm Measurement $1/\min : 500$ Speed 1st pressure hPa : 300 Rack travel in m: 12.10...12.20 2nd pressure hPa : 360 Rack travel in m: 12.60...12.90 3rd pressure hPa : 1000 Rack travel in m: 13.00...13.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 Speed rpm : 750 Del.quantity cm3/: 83.0...86.0 1000 s: (80.5...88.5) : 5.00 Spread cm3 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 50.0...52.0 1000 s: (48.0...54.0) BREAKASSAY

1mm rack travel less than

full load rack tr: 12.00 rpm : 1340...1345 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm Del.quantity cm3/: 85.0...95.0 1000 s: (92.0...98.0)

LOW IDLE

Speed : 350 rpm

Rack travel in mm : 6.20...6.90 Del.quantity cm3/: 10.0...12.0 1000 s: (6.5...15.5) Spread cm3: 3.50

1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

* Read off speed set under 1. Add 57...65 min-1 to this speed. The control-rod travel under 2. must be attained with the calculated speed profile.

J23

1st version

Note remarks

: MB 6,0 H 3 Test sheet : 31.08.90 Edition

Replaces

Test oil : ISO-4113

Combination no. : 0 403 476 093

Injection pump

Pump designation : PES6MW100/720RS1191

: 0 413 406 179 EP type number

Governor

Governor design. : RSV350...1300MW0A329

: 0 420 085 151 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M 366 LA Engine

1st version kW : 155.0 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

: 6.00x1.50x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.50...3.60 Prestroke mm

: (3.45...3.65)

Rack travel in mm : 9.00...12.00 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

BASIC SETTING

rpm: 1280 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 350.02nd speed Rack travel in mm : 6.0...6.2

Del.quantity cm $3/:0.9...1.\overline{3}$ 100 s: (0.6...1.5) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...1.00

Governor spring pre-tension Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000 Del.quantity : 98.0...100.0 1000 : (96.0...102.0)

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

rpm : 800 Speed Rack travel in mm: 0.6

Testing:

1st rack travel in: 13.00 : 1330...1340 Speed rom 2nd rack travel in: 4.00 : 1420...1450 Speed man 4th rack travel in: 1550 Speed rom : 0.30...1.70LOW IDLE 1 Control lever position degrees: 75...83 Setting point w/out bumper spring : 350 rpm Rack travel in mm: 6.1 Testina: Speed rpm : 100 Minimum rack trave: 19.00 : 350 Speed rpm Rack travel in mm : 6.00...6.20 SET IDLE AUXILIARY SPRING Rack travel in mm: 2.00 Aneroid/Altitude Compensator Test 1st version Setting : 500 Speed rpm Pressure hPa : -Rack travel mm : 10.10...10.20 Measurement 1/min: 500 Speed 1st pressure hPa : 300 Rack travel in m: 10.60...10.70 2nd pressure hPa : 380 Rack travel in m: 11.50...11.80 3rd pressure hPa : 1000 Rack travel in m: 14.00...14.10 FUEL DELIVERY CHARACTERISTICS 1st version Aneroid pressure h: 1000 : 600 Speed rpm Del.quantity cm3/: 88.0...92.0 1000 s: (86.0...94.0) cm3 : 5.00 Spread 1000 s: (7.0) Aneroid pressure h: -: 500 Speed rpm Del.quantity cm3/: 35.0...37.0 1000 s: (33.0...39.0)

1st version 1mm rack travel less than

full load rack tr: 13.00 Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 100.0...110.0 1000 s: (97.0...113.0)

LOW IDLE

pread cms : 3.30 1000 s: (5.00)

Remarks:

Test hydr. locking device for starting with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS Prestroke mm : 3.50...3.60 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-2-4 Note remarks Test sheet : MAN 7,2 U : 17.05.90 Edition Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 0 403 486 102 Tolerance + - ° : 0.50 (0.75) Injection pump Time to cyl. no. : 1 Pump designation : PES6MW100/321RS1192 : 0 413 406 182 EP type number BASIC SETTING Governor Governor design. : RSV300...1300MW0A902 1st speed rom: 1300 : 0 420 085 132 Rack travel in mm : 13.00...13.10 Governer no. : 3-7016 Del.quantity cm3/: 14.4...14.6 Cust. part no. 100 s: (14.2...14.8) Customer-spec. information Customer : MAN Spread cm3 : 0.3: D0826LE40 Engine 100 s: (0.6) : 199.0 1st version kW rpm : 300.0 : 2600 2nd speed Rated speed Rack travel in mm: 4.7...4.9 Del.quantity cm3/: 1.3...1.7 TEST BENCH REQUIREMENTS 100 s: (1.0...1.9) cm3 : 0.3Test oil Spread 100 s: (0.5) inlet temp. °C : 38...42 Overflow valve GUIDE SLEEVE POSITION : 1 417 413 047 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Rack travel in mm : 0.30...1.00 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : 5.50 Opening : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP pressure, bar 1st version rpm : 1300 Test Lines : 1 680 750 008 Speed : 144.0...146.0 Del.quantity 1000 : (142.0...148.0) Outside diameter : 3.50 x Wall thickness Spread cm3 : (6.00) x Length mm : 6.00X2.00X600 1000 RATED SPEED (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values position degrees: 64...72

Setting point:

rpm

Speed

: 800

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Rack travel in mm: 0.6 Testing: 1st rack travel in: 12.00 rpm : 1350...1360 Speed 2nd rack travel in: 4.00 Speed rpm : 1460...1490 4th rack travel in: 1650 rpm : 0.30...1.70Speed LOW IDLE 1 Control Lever position degrees: 29...37 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 4.8 Testing: : 100 Speed rpm Minimum rack trave: 19.00 : 300 rpm Rack travel in mm : 4.70...4.90 FUEL DELIVERY CHARACTERISTICS 1st version : 800 Speed rom Del.quantity cm3/: 152.5...155.5 1000 s: (150.0...158.0) cm3 : 5.00Spread 1000 s: (7.0) Speed rpm : 500 Del.quantity cm3/ : 145.5...148.5 1000 s: (143.0...151.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.00 Speed rpm : 1350...1360 STARTING FUEL DELIVERY LOW IDLE rpm : 300 Speed Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 13.0...17.0 1000 s: (10.5...19.5)

Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

: MAN #3-7016

Note remarks

: MB 8,7 Q Test sheet Edition : 16.08.90 : 30.09.88 Replaces Test oil : ISO-4113

: 0 403 546 006 Combination no.

Injection pump

Pump designation : PE6MW100/720RS1177

: 0 413 506 107 EP type number

Governor

Governor design. : RQ300/1250MW12-1 : 0 420 082 010 Governer no.

Customer-spec. information Customer : MB-NFZ

: 0M360A Engine

: 155.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozale holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.80...3.90 Prestroke mm : (3.75...3.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.40...12.50

Del.quantity cm3/: 9.9...10.1

100 s: (9.7...10.3)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.02nd speed Rack travel in mm: 8.3...8.4

Del.quantity cm3/: 1.3...1.7 100 s: (1.1...2.0)

cm3 : 0.3Spread 100 s: (0.5)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1410

travel mm : 9.80...10.20

1310 2nd speed rpm : travel mm

: 7.30...7.50 rpm : 420 3rd speed

: 5.70...6.30 travel mm rpm : 300

4th speed : 2.30...2.70 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -2

rpm : 650 Speed

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 99.5...101.5 Del.quantity 1000 : (97.5...103.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 35...43

Setting point:

Speed rpm Rack travel in mm: 13.5

Testing:

1st rack travel in: 11.40

Speed rpm: 1295...1310 2nd rack travel in: 4.00

Speed rpm : 1395...1425 4th rack travel in: 1550

rpm : 0.10...1.00Speed

LOW IDLE 1

Control Lever

position degrees: 10...18

Setting point w/out bumper spring Speed rpm : 300

Rack travel in mm: 8.3

Testina:

: 220 Speed rpm

Minimum rack trave: 10.30 Speed

rpm : 300

Rack travel in mm : 8.30...8.40 Rack travel in mm : 2.00

rpm : 395...435 Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750
Del.quantity cm3/ : 93.0...97.0
1000 s: (91.0...99.0)

cm3 : 5.00Spread

1000 s: (7.0)

RACK STOP ADJUSTMENT

Speed rpm : 500

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1295...1310 Speed

STARTING FUEL DELIVERY

Speed : 100 rpm

Del.quantity cm3/: 125.0...135.0 1000 s: (122.0...138.0)

LOW IDLE

Speed rpm : 300 Rack travel in mm : 8.30...8.40

Del.quantity cm3/: 13.5...17.5 1000 s: (11.0...20.0)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

K01

Note remarks

: MB 8,7 P 2 : 16.08.90 Test sheet Edition : 20.06.88 Replaces

: ISO-4113 Test oil

: 0 403 546 008 Combination no.

Injection pump

Pump designation : PE6MW100/720RS1126

: 0 413 506 101 EP type number

Governor

Governor design. : RQ300/1250MW12-2 : 0 420 082 020 Governer no.

Customer-spec, information : MB-NF7 Customer

Engine : 0M560A

: 147.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm

: 3.80...3.90 : (3.75...3.95)

Rack travel in mm : 9.00...12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.90...13.00

Del.quantity cm3/ : 9.7...9.9

100 s: (9.5...10.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 300.0 2nd speed Rack travel in mm: 8.6...8.7 Del.quantity cm3/: 1.0...1.4

100 s: (0.7...1.6) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2

rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1250 : 97.0...99.0 Del.quantity 1000 : (95.0...101.0)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Setting point:

rpm Rack travel in mm : 13.5

Testing:

1st rack travel in: 11.90

rpm : 1295...1310 Speed

2nd rack travel in: 4.00

rpm : 1415...1445 Speed

4th rack travel in: 1550

rpm : 0.10...1.00Speed LOW IDLE 1 Control Lever position degrees: 13...21 Setting point w/out bumper spring rpm : 300 Speed Rack travel in mm: 8.6 Testing: Speed rpm : 220 Minimum rack trave: 10.40 : 300 Speed rpm Rack travel in mm : 8.60...8.70 Rack travel in mm : 2.00 Speed rpm : 430...470 FUEL DELIVERY CHARACTERISTICS 1st version : 750 Speed rpm Del.quantity cm3/: 90.5...94.5 1000 s: (88.5...96.5) cm3 : 5.00 Spread 1000 s: (7.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 : 1295...1310 Speed rpm STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 80.0...90.0 1000 s: (77.0...93.0) LOW IDLE rpm : 300Speed Rack travel in mm : 8.60...8.70 Del.quantity cm3/: 10.0...14.0 1000 s: (7.5...16.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: :

Note remarks

: KHD 13,4d11 Test sheet : 13.16.89 Edition

Replaces

: ISO-4113 Test oil

Combination no. : 0 403 548 024

Injection pump

Pump designation : PE8MW100/720LS1128

: 0 413 508 103 EP type number

Governor

Governor design. : RQV300...1150MW56-4

: 0 420 083 155 Governer no.

Customer-spec. information

Customer : KHD

: BF 8L 513 Engine

1st version kW : 243.0 : 2300 Rated speed : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

pressure, bar : 172...175

: 1 680 740 014 Test Lines

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

: 3.10...3.20 Prestroke mm

: (3.05...3.25)

Rack travel in mm : 9.00...12.00 Firing order : 1-8-7-2-6-5-4-3

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1150 1st speed

Rack travel in mm : 13.60...13.70

Del.quantity cm3/: 15.1...15.3

100 s: (14.9...15.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 300.02nd speed

Rack travel in mm: 6.6...6.8

Del.quantity cm3/: 1.3...1.7 100 s: (1.1...1.9) Spread cm3: 0.3

100 s: (0.5)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 1320 1st speed

: 10.00...10.40 travel mm

rpm : 1210 2nd speed

: 8.80...9.00 travel mm

rpm : 600 3rd speed : 3.90...4.50 travel mm

: 300 4th speed rpm

: 1.00...1.40 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 1000

: 151.0...153.0 Del.quantity

1000 : (149.0...155.0)

cm3 : 3.50 Spread 1000 : (6.00)

K04

RATED SPEED

1st version

Control Lever

position degrees: 52...60

Testing:

1st rack travel in: 12.60 Speed rpm : 1190...1200 2nd rack travel in: 4.00 Speed rpm : 1290...1320

4th rack travel in: 1350

rpm : 0.00...1.00 Speed

LOW IDLE 1

Control lever

position degrees: 19...27

Testing:

: 100 Speed rpm

Minimum rack trave: 8.20

rpm : 300 Speed

Rack travel in mm : 6.60...6.80

Rack travel in mm : 2.00

: 430...490 Speed rpm

CONSTANT REGULATION

Speed rpm : 310...420

Aneroid/Altitude

Compensator Test

1st version

Setting

: 500 Speed rpm

hPa : 710 Pressure

: 13.00...13.10 Rack travel mm

Measurement

1/min: 500 Speed

1st pressure hPa : -

Rack travel in m: 11.80...11.90

2nd pressure hPa : 530 Rack travel in m: 12.20...12.50

3rd pressure hPa : 1000

Rack travel in m: 13.60...13.70

START CUT-OUT

1/min : 220 (250) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Ameroid pressure h: -

Speed

rpm : 450

Del.quantity cm3/: 108.0...110.0

1000 s: (106.0...112.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.60

rpm : 1190...1200 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 140.0...150.0 1000 s: (137.0...153.0)

LOW IDLE

rpm : 300 Speed

Rack travel in mm : 6.60...6.80

Del.quantity cm3/: 13.0...17.0 1000 s: (11.0...19.0) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Check electrically unlatched starting

fuel delivery (EES) with 24 volt.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : PER 17,4 a : 29.05.90 Edition Replaces : 2.10.89 : ISO-4113 Test oil

Combination no. : 0 405 638 201

Injection pump

Pump designation : PE8PM120A120RS7119 : 0 415 628 201 EP type number

Governor

Governor design. : RQ350/1150PA791 : 0 421 801 340 Governer no.

Customer-spec. information : PERKINS Customer

: MCY 80 Engine

: 410.0 1st version kW : 2300 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 019 assembly

Opening

: 207...210 pressure, bar

Orifice plate

: 0,8 diameter mm

Test Lines : 1 680 750 067

Outside diameter x Wall thickness

: 6.00x1.50x1000 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

: 5.00...5.10 : (4.95...5.15) Prestroke mm

Rack travel in mm : 9.00...12.00

: 1- 3- 6-7- 2 Firing order

: 0-45-90-135-180-225-Phasing

270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rom: 1150

Rack travel in mm : 13.60...13.70

Del.guantity cm3/: 25.7...25.9

100 s: (25.4...26.2)

Spread cm3 : 0.5

100 s: (0.9)

rpm : 350.0 2nd speed Rack travel in mm: 4.9...5.1

Del.quantity cm3/: 1.7...2.3

100 s: (1.4...2.6)

cm3 : 0.8Spread 100 s: (1.2)

GUIDE SLEEVE POSITION Control-lever position

Degree: -2 rpm : 750

Speed Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1150 Speed

Aneroid pressure h: 1200 Del.quantity : 257.0...259.0 1000 : (254.0...262.0)

cm3 : 5.00 Spread

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 750 Rack travel in mm: 20.0

Testing:

1st rack travel in: 12.60 rpm : 1195...1210 Speed 2nd rack travel in: 4.00 rpm : 1285...1315 Speed 4th rack travel in: 1400 Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring

rpm : 350 Rack travel in mm : 5.0

Testing:

: 250 Speed rpm Minimum rack trave: 6.40 : 350 Speed rpm

Rack travel in mm : 4.90...5.10 Rack travel in mm : 2.00 : 390...430 Speed rpm

Aneroid/Altitude Compensator Test

1st version Settina

: 500 Speed rpm hPa : 1200 Pressure

: 13.60...13.70 Rack travel mm

Measurement

Speed 1/min: 500

1st pressure hPa : -

Rack travel in m: 11.00...11.20

2nd pressure hPa : 890

Rack travel in m: 12.90...13.00

3rd pressure hPa : 590

Rack travel in m: 11.30...11.50

START CUT-OUT

 $1/\min : 300 (0)$ Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200 : 700 Speed rpm

Del.quantity cm3/: 259.0...265.0 1000 s: (256.0...268.0)

Aneroid pressure h: -

Speed rpm : 700 Del.quantity cm3/: 192.0...196.0

1000 s: (190.0...198.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.60

rpm : 1195...1210 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 195.0...215.0 1000 s: (192.0...218.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

rpm : 350 Speed

Rack travel in mm: 4.90...5.10 Del.quantity cm3/: 17.0...23.0 1000 s: (14.0...26.0)

cm3 : 8.00Spread 1000 s: (12.00)

Remarks:

Delivery-valve spring pre-tension 3.2...3.4 mm.

Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring preload on new delivery-valve holders to 2.9...3.1 mm.

Note remarks

: SCA 11,0 n1 : 5.9.50 Test sheet

Edition

Replaces Test oil

: ISO-4113

Combination no. : 9 400 087 238

Injection pump

Pump designation : PE6P110A720RS3022

EP type number : 9 400 087 016

Governor

Governor design. : RQV250...1100PA183R

Governer no. : 0 421 813 115

Customer-spec. information

: SAAB-SCANIA Customer

Engine : D 11

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening |

pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter

x Wall thickness

x Length mm : 6,00X1,50X600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 3.30...3.40 : (3.25...3.45) Prestroke mm

Rack travel in mm: 12.00

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm: 12.00

Del.quantity cm3/: 12.5...13.3

100 s: (12.3...13.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 200 2nd speed

Rack travel in mm : 9.00 Del.quantity cm3/ : 3.9...4.9 100 s: (3.7...5.1)

Spread cm3 : 100 s: (-)

rpm : 600 3rd speed Rack travel in mm: 15.00

Del.quantity cm3/: 17.6...18.8 100 s: (-)

cm3 : -Spread 100 s: (-)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1120

: 8.20...8.40 travel mm

GUIDE SLEEVE POSITION Control-lever position

Degree: -1

rpm : 1120 Speed

Rack travel in mm : 15.00...17.60

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 135.0...137.0 Del.quantity

1000 : (133.0...139.0)

Spread cm3 : 4.0

1000 : (-)

RATED SPEED

1st version

Control lever

position degrees: 62...70

Testing:

1st rack travel in: 11.50

Speed rpm : 1135...1145 2nd rack travel in: 3.30 rpm : 1285...1315 Speed 3rd rack travel in: 9.2...13.6 rpm : 1200 Speed 4th rack travel in: 1410 Speed rpm LOW IDLE 1 Control lever position degrees: 6...14 Testing: Speed : 150 rpm Minimum rack trave: 8.00 : 250 Speed rpm Rack travel in mm : 3.60...6.10 Rack travel in mm: 1.75
Speed rpm: 360...440
Speed rpm: 500
Maximum rack trave: 1.00 FUEL DELIVERY CHARACTERISTICS 1st version : 1200 Speed rpm Del.quantity cm3/: 38.0...48.0 1000 s: (-) Spread Cm3 1000 s: (-) Speed rpm : 600 Del.quantity cm3/ : 132.0...136.0 1000 s: (129.0...139.0) Spread cm3 : 1000 s: (-) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 rpm : 1135...1145 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 190.0...240.0 1000 s: (-) LOW IDLE Speed rpm : 225 Del.quantity cm3/ : 8.0...12.0 1000 s: (-) Spread cm3 : 2.0 1000 s: (-)

K09

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

Note remarks

Test sheet : SCA 11,0 s3

Edition : 5.9.50

Replaces : -

Test oil : ISO-4113

Combination no. : 9 400 087 275

Injection pump

Pump designation : PE6P110A720RS3065 EP type number : 0 411 816 717

Governor

Governor design. : RQV250...1100PA600

Governer no. : 9 420 080 150

Customer-spec. information

Customer : SAAB-SCANIA

Engine : D 11

1st version kW : 149.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 40...45

Overflow valve

: 1 417 413 025

Inlet press., bar: 1.50

Test nozzle holder

assembly : 0 681 343 009

Opening.

pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness

x Length mm : 6,00x1,50x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Prestroke mm : 3.30...3.40

: (3.25...3.45)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - \circ : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.40...12.60

Del.quantity cm3/: 13.5...13.7

100 s: (13.2...14.0)

Spread cm3: 0.4

100 s: (0.8)

2nd speed rpm : 225

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 0.9...1.3

100 s: (-) Spread cm3 : 0.2

spread cms : 0.2 100 s: (0.4)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1100 travel mm : 8.00 2nd speed rpm : 800

travel mm : 5.60...5.80

3rd speed rpm : 400

travel mm : 2.80...3.30

GUIDE SLEEVE POSITION Control-lever position

Degree: -1 rpm : 1100

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 135.0...137.0

1000 : (133.0...139.0) Spread cm3 : 5.0

Spread cm3 : 5.0 1000 : (8.0)

RATED SPEED

1st version

Control lever

position degrees: 57...65

Testing: 1st rack travel in: 11.50 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 Speed rpm : 1250...1280 4th rack travel in: 1400 Speed rom : 0.00...1.00LOW IDLE 1 Control lever position degrees: 6...14 Testing: : 100 Speed mqn Minimum rack trave: 7.30 : 225 rpm Rack travel in mm : 5.80...6.00 Rack travel in mm : 2.00 : 345...405 Speed FIDE FUEL DELIVERY CHARACTERISTICS 1st version : 600 Speed rpm Del.quantity cm3/: 132.5...135.5 1000 s: (130.0...138.0) cm3 : 6.0Spread 1000 s: (10.0) **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.50 Speed rpm : 1140...1150 STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 190.0...240.0 1000 s: (-) Rack travel in mm : 20.00...21.00 HIGH IDLE 1st version Rack travel in mm : 6.00...6.20

Del.quantity_cm3/: -

rom

Spread

LOW IDLE

Speed

K11

1000 s: (-) cm3 : 4.0

1000 s: (7.0)

: 225

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 9.0...13.0 1000 s: (-) Spread cm3 : 2.0 1000 s: (4.0)

Remarks:

Delivery-valve spring pre-tension = 2.40...2.60 mm.
Permissible alteration from 2.20...2.90 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS Rack travel in mm : 10.50 Firing order : 1-5- 3- 6- 2- 4 Note remarks Test sheet : DEE 7,6 j 1 : 08.06.90 Edition Phasing : 0-60-120-180-240-300 Replaces : 7.4.89 : ISO-4113 Tolerance + - ° : 0.50 (0.75) Test oil Combination no. : 9 400 230 046 Time to cyl. no. : 1 Injection pump BASIC SETTING Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006 1st speed rpm: 1100 Governor Rack travel in mm : 9.90...10.00 : RSV600...1100A2C2048 Governor design. -1L : 9 420 234 157 Del.quantity cm3/: 9.1...9.3 Governer no. 100 s: (8.9...9.5) Customer-spec. information : JOHN DEERE Customer cm3 : 0.3Spread : 6466T Engine 100 s: (0.6) : 110.0 1st version kW rpm : 600.0 : 2200 2nd speed Rated speed Rack travel in mm : 5.0...5.2 Del.quantity cm3/ : 1.2...1.6 TEST BENCH REQUIREMENTS 100 s: (0.9...1.8) cm3 : 0.3 Test oil Spread inlet temp. °C : 38...42 100 s: (0.5) GUIDE SLEEVE POSITION Overflow valve : 1 413 385 007 Control-lever position Degree: -3 rpm : 800 Inlet press., bar: 1.50 Speed Rack travel in mm : 0.30...0.70 Test nozzle holder : 0 681 343 009 Governor spring pre-tension assembly Click setting x : ? Openina pressure, bar : 172...175 FULL LOAD DELIV. AT FULL LOAD STOP 1st version : 1 680 750 008 rpm : 1100 Test lines Speed : 91.0...93.0 Del.quantity : (89.0...95.0) 1000 Outside diameter : 3.50 x Wall thickness Spread cm3 : 6.00X2.00X600 1000 : (6.00) x Length mm (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version Control lever per values ____ position degrees: 44...52 BEGINNING OF DELIVERY Testing: Test pressure, bar: 27...29 1st rack travel in: 8.90

rpm : 1145...1155

Speed

2nd rack travel in: 4.00

Prestroke mm

: 1.85...1.95

: (1.80...2.00)

rpm : 1195...1225 Speed 4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

; 600 rpm Rack travel in mm: 4.6

Testina:

: 100 Speed rom Minimum rack trave: 19.00 rpm : 600

Rack travel in mm : 5.00...5.20

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 9.90...10.00 and speed rpm : 950 Rack travel in m: 10.70...10.90

2nd speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 950 Del.quantity cm3/ : 104.0...108.0 1000 s: (101.5...110.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 8.90

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (150.0...180.0) Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

: 1200 Speed rpm

Rack travel in mm : 4.70...4.90

LOW IDLE

: 600 Speed rpm

Rack travel in mm : 5.00...5.20

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5) Spread cm3: 3.50

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE10472

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

Note remarks

Test sheet : DEE 7,6 j : 08.06.90 Edition : 3.3.89 Replaces Test oil : ISO-4113

: 9 400 230 047 Combination no.

Injection pump

Pump designation : PES6A95D41ORS2561 EP type number : 9 410 230 006

Governor

Governor design. : RSV600...1100A2C2049

-1L

: 9 420 234 158 Governer no.

Customer-spec. information

: JOHN DEERE Customer

: 6466TH-02 Engine

: 125.0 : 2200 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 413 385 007

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Openina

: 172...175 pressure, bar

Test Lines : 1 680 750 008

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 1.85...1.95 Prestroke mm

: (1.80...2.00)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 10.7...10.9

100 s: (10.5...11.1)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 600.0 2nd speed Rack travel in mm : 4.9...5.1 Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1100 Speed

: 107.0...109.0 Del.quantity 1000 : (105.0...111.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.60

rpm : 1145...1155 Speed

2nd rack travel in: 4.00

Speed rpm : 1200...1230 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control lever

position degrees: 24...32 Setting point w/out bumper spring

Speed rpm: 600 Rack travel in mm: 4.5

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 600

Rack travel in mm : 4.90...5.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed

st speed rpm : 1100 Rack travel in m: 10.60...10.70

2nd speed rpm : 950

Rack travel in m: 11.50...11.70

FUEL DELIVERY CHARACTERISTICS

1st version

rpm_ : 950 Speed

Del.quantity cm3/: 120.0...124.0

1000 s: (118.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.60

rpm : 1145...1155 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 155.0...175.0 1000 s: (150.0...180.0)

Rack travel in mm : 19.00...21.00

HIGH IDLE

1st version

Speed rpm : 1200 Rack travel in mm : 4.70...4.90

LOW IDLE

: 600 Speed rpm

Rack travel in mm : 4.90...5.10

Del.quantity cm3/: 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

: JOHN DEERE # RE28881

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Start-of-delivery mark = 15.5° after

start of delivery cyl. 1.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a11
Edition : 08.06.90
Replaces : 28.9.89
Test oil : ISO-4113

Combination no. : 9 400 230 089

Injection pump
Pump designation : PES6A100D320/3RS2691
EP type pump : 9 410 230 025

EP type number : 9 410 230 025 Governor

Governor design. : RSV400...1100A0c2190

Governer no. : 9 420 234 125

Customer—spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 129.0 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant. per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29 Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ}$: 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 10.60...10.70

Del.quantity cm3/: 9.5...9.7

100 s: (9.3...9.9)

Spread cm3:0.4

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6 100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Speed rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1100

Del.quantity : 95.5...97.5 1000 : (93.5...99.5)

Spread cm3 : 4.00

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 41...49

Testing:

1st rack travel in: 9.60 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1190...1220 Speed 3rd rack travel in: 4.00 rpm : 1190...1220 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.60 Speed rpm : 1140...1150 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 6.00 Spread 1000 s: (8.00) Remarks: : C.D.C. # 3915960 Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a20 : 17.05.90 Test sheet Edition Replaces : 2.5.89 : ISO-4113 Test oil

Combination no. : 9 400 230 089CA

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3911945 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

1st version kW : 126.8 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8 -

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

: 1100 Speed rpm

Del.quantity : 96.5...98.5 1000 : (94.5...100.5)

cm3 : 3.50

Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

Testing:

1st rack travel in: 9.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

3rd rack travel in: 4.00

Speed rpm: 1200...1230 4th rack travel in: 1300

rom : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 27...35

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.70...10.80 d speed rpm : 750

2nd speed

Rack travel in m: 12.30...12.50

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rom : 750

Del.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50 Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a21 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113 Combination no. : 9 400 230 089cB Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1250A0C2190 : 3191958 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 CT 8.3 ltr Engine : 160.0 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina . : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1250 Rack travel in mm : 12.00...12.10 Del.quantity cm3/: 12.1...12.3 100 s: (11.9...12.5) Spread cm3 : 0.3100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 : 121.0...123.0 Speed Del.quantity 1000 : (119.0...125.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 48...56

Testing:

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 2nd speed rpm: : 750 Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version rpm : 750 Speed Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm: 400 Rack travel in mm: 5.80...6.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50
1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm
before stop.

Start-of-delivery mark 11° cam angle
after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a22 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

: 9 400 230 08900 Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3911962 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 CTA 8.3ltr

: 174.5 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 12.70...12.80

Del.quantity cm3/: 12.6...12.8

100 s: (12.4...13.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 126.5...128.5 Del.quantity 1000 : (124.5...130.5)

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 39...47

Testing:

1st rack travel in: 11.70 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1200...1230 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1300 Speed róm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 20...28 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.70 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a23 Test sheet : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil

: 9 400 230 089cb Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design: : RSV400...1000A0C2190

: 3908566 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Engine

: 171.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Dearee: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

: 131.0...133.0 Del.quantity 1000 : (129.0...135.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 12.20 rpm : 1050...1060 Speed 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 3rd rack travel in: 4.00 rpm : 1135...1165 Speed 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm : 5.1 Testina: : 100 Speed man Minimum rack trave: 19.00 : 400 Speed man Rack travel in mm : 5.50...5.70 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 12.20 Speed rpm : 1050...1060 Speed STARTING FUEL DELIVERY : 100 Speed rom Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5) Spread cm3 : 3.501000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a25 Test sheet Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 089CF

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3911543 Cust, part no.

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 ltr. Engine

: 138.0 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 Del.quantity 1000 : (104.5...110.5)

> : 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 49...57

Testing:

K26

1st rack travel in: 10.40 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1215...1245 Speed 3rd rack travel in: 4.00 Speed rpm : 1215...1245 4th rack travel in: 1300 rpm : 0.30...1.40 Speed LOW IDLE 1

Control lever position degrees: 27...35 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.5

Testing: : 100 Speed MON Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.80...6.00

TORQUE CONTROL Torque control curve - 1st version rpm : 1100 1st speed Rack travel in m: 11.40...11.50 rpm : 750 2nd speed Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version Speed rpm : 750 Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

1st version

BREAKAWAY

1mm rack travel less than

full load rack tr: 10.40 rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed : 400 rpm Rack travel in mm: 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of délivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a26 Edition : 17.05.90 Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 0890G

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design: : RSV400...1000A0C2190

Cust. part no. : 3911544

Customer spec. information Customer : C.D.C.

Engine : 6 C 8.3

1st version kW : 127.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening.

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 400.0 Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm: 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm: 1000

Del.quantity : 100.0...102.0 1000 : (98.0...104.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 38...46

Testing:

1st rack travel in: 10.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1080...1110 Speed

3rd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1150

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

: 400 rom Rack travel in mm: 5.4

Testina:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1000

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 100) s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 460 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 : (2.75...2.95) Prestroke mm Note remarks Rack travel in mm: 10.50 : CUM 8,3 a27 : 17.05.90 : 1-5-3-6-2-4 Test sheet Firing order Edition : 2.5.89 Replaces : ISO-4113 Test oil Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 089CH Tolerance + - ° : 0.50 (0.75) Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 EP type number : 9 410 230 025 BASIC SETTING Governor Governor design. : RSV400...1050A0C2190 rom : 10501st speed Cust. part no. : 3912920 Rack travel in mm : 11.10...11.20 Customer spec. information Del.quantity cm3/: 10.1...10.3 Customer : C.D.C. : 6 C 8.3 100 s: (9.9...10.5) Engine : 131.0 cm3 : 0.31st version kW Spread : 2100 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS rpm : 400.0 2nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.4...1.8 Test oil inlet temp. °C : 38...42 100 s: (1.1...2.0) Overflow valve Spread cm3 : 0.3100 s: (0.5) : 1 417 413 047 GUIDE SLEEVE POSITION Inlet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 rpm : 800 : 1 688 901 017 assembly Speed Rack travel in mm : 0.30...0.70 Openina : 207...210 Governor spring pre-tension pressure, bar Click setting x : ? Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version Test lines : 1 680 750 014 Speed rpm : 1050 : 101.5...103.5 Del.quantity 1000 : (99.5...105.5) Outside diameter : 3.50 x Wall thickness Spread Cins 1000 : (6.00) x Length mm : 6.00X2.00X600 (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version

Control lever

Testing:

position degrees: 44...52

BEGINNING OF DELIVERY Test pressure, bar: 27...29

per values

L02

1st rack travel in: 10.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1145...1175 Speed

3rd rack travel in: 4.00

Speed rpm : 1145...1175 4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 26...34

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.1

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050
Rack travel in m: 11.10...11.20

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 119.5...123.5

1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm: : 400 Rack travel in mm: 5.50...5.70 Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

Spread cm3 : 3.50

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a28 Test sheet : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 089CI Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV500...1050A0c2190

Cust. part no. : 3911971

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 123.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 500.0 2nd speed Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 cm3 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testing:

L04

1st rack travel in: 9.70 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 : 1195...1225 Speed rpm 3rd rack travel in: 4.00 : 1195...1225 Speed rom 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 35...44 Setting point w/out bumper spring : 500 rpm Rack travel in mm: 5.1 Testina: : 100 Speed rpm Minimum rack trave: 19.00 : 500 rom Rack travel in mm: 5.50...5.70 TORQUE CONTROL rpm : 1050 1st speed rpm : 750 2nd speed Rack travel in m: 12.20...12.40 FUEL DELIVERY CHARACTERISTICS 1st version

Torque control curve - 1st version Rack travel in m: 10.70...10.80

: 750 Speed rpm Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70 rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500 Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

Test sheet : CUM 8,3 a29 Edition : 17.05.90 : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 089cJ Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1050A0C2190

: 3914700 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 0 8.3 Engine

: 131.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 11.10...11.20

Del.guantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.5...5.7

Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3 rpm : 800

Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 101.5...103.5 Del.quantity

1000 : (99.5...105.5)

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

Testina:

1st rack travel in: 10.10

Speed rpm : 1090...1100 2nd rack travel in: 4.00

: 1145...1175 Speed rpm

3rd rack travel in: 4.00

: 1145...1175 Speed man.

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.1

Testing:

Speed : 100 rpm Minimum rack trave: 19.00 : 400 rpm

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.10...11.20

2nd speed rpm : 750

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 119.5...123.5 1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.50...5.70

Del.quantity cm3/: 14.0...18.0 1000 s: (11.5...20.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a30 Test sheet Edition : 17.05.90 : 2.5.89 Replaces

: ISO-4113 Test oil

: 9 400 230 089CK Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1250ADC2190

: 3914699 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 ltr Engine

: 160.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1250

Rack travel in mm : 12.00...12.10

Del.quantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

: 121.0...123.0 Del.quantity

1000 : (119.0...125.0) : 3.50

Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing:

L08

1st rack travel in: 11.00 Speed rpm : 1290...1300 2nd rack travel in: 4.00

rpm : 1355...1385 Speed 3rd rack travel in: 4.00

rpm : 1360...1390 Speed

4th rack travel in: 1450

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control Lever

position degrees: 26...34

Setting point w/out bumper spring

ricm : 400Rack travel in mm: 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 12.00...12.10 2nd speed rpm : 750

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 11.00

rpm : 1290...1300 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Start-of-delivery mark 11" cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a31 Edition : 17.05.90 : 2.5.89 Replaces Test oil : ISO-4113

Combination no. : 9 400 230 089CL

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV500...1050A0C2190

: 3914171 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 123.0 1st version kW : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95)
Rack travel in mm : 10.50...10.50

Firina order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1050

Rack travel in mm : 10.70...10.80

Del.guantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

2nd speed rpm : 500.0 Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 53...61

Testina:

1st rack travel in: 9.70

rpm : 1095...1105 Speed

2nd rack travel in: 4.00

rpm : 1195...1225 Speed

3rd rack travel in: 4.00

rpm : 1195...1225 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 35...44

Setting point w/out bumper spring

rpm Rack travel in mm: 5.1

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 Speed rpm : 500

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve 1st version

1st speed rpm : 1050

Rack travel in m: 10.70...10.80 nd speed rpm : 750 Rack travel in m: 12.20...12.40

2nd speed

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 500

Rack travel in mm : 5.50...5.70 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50)

Remarks:

Spread

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

Test sheet : CUM 8,3 a32 : 17.05.90 Edition : 2.5.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 089CM

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3912535

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 133.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening |

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.1...10.3

100 s: (9.9...10.5)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.5...5.7 Del.quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 101.0...103.0 1000 : (99.0...105.0)

Spread cm3

: 3.50 : (6.00) 1000

RATED SPEED

1st version Control lever

position degrees: 50...58

1st rack travel in: 10.30

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1210...1240

3rd rack travel in: 4.00

: 1210...1240 Speed rom

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 30...38

Setting point w/out bumper spring

rpm : 400 Speed Rack travel in mm: 5.1

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.50...5.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed

st speed rpm : 1100 Rack travel in m: 11.30...11.40

rpm : 750 2nd speed

Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 750 Speed

Del.quantity cm3/: 116.5...120.5

1000 s: (114.5...122.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.30

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 12.0...16.0 1000 s: (9.5...18.5)

cm3 : 3.50Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a33 : 17.05.90 Test sheet Edition : 2.5.89 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0890N

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1050A0C2190

: 3908565 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

1st version kW : 174.0 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

: 1 680 750 014 Test lines

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm ; (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasina

: 0.50 (0.75) Tolerance + - °

Time to cyl. no.

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 12.90...13.00

Del.guantity cm3/: 12.9...13.1

100 s: (12.7...13.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

: 129.0...131.0 Del.quantity

1000 : (127.0...133.0) cm3 : 3.50 1000 : (6.00) Spread

RATED SPEED

1st version

Control lever

position degrees: 37...45

1st rack travel in: 11.90 rpm : 1095...1105 Speed 2nd rack travel in: 4.00 rpm : 1170...1200 Speed 3rd rack travel in: 4.00 : 1170...1200 Speed rpm 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 18...26 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.90 rpm : 1095...1105 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a34 Edition : 17.05.90 : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 08900

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915961 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

: 126.8 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening |

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.70...10.80

Del.quantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 96.5...98.5 Del.quantity 1000 : (94.5...100.5)

: 3.50 cm3

Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 46...54

1st rack travel in: 9.70

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1200...1230 Speed

3rd rack travel in: 4.00

rpm : 1200...1230 Speed

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1 Control Lever

position degrees: 27...35

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.4

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 12.30...12.50

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 400

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Note remarks

: CUM 8,3 a35 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113

Combination no. : 9 400 230 089CP

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

Cust. part no. : 3915949

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Engine

: 171.0 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10001st speed

Rack travel in mm : 13.20...13.30

Del.quantity cm3/: 13.1...13.3

100 s: (12.9...13.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.4...1.8

100 s: (1.1...2.0)

cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1000 Speed

: 131.0...133.0 Del.quantity 1000 : (129.0...135.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

L18

1st rack travel in: 12.20 Speed rpm : 1050...1060 2nd rack travel in: 4.00 rpm : 1130...1160 Speed 3rd rack travel in: 4.00 Speed rpm : 1135...1165 4th rack travel in: 1150 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.1 Testing: Speed : 100 rom Minimum rack trave: 19.00 : 400 Speed L DU Rack travel in mm : 5.50...5.70 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 12.20 rpm : 1050...1060 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400
Rack travel in mm : 5.50...5.70
Del.quantity cm3/: 14.0...18.0
1000 s: (11.5...20.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks

: CUM 8,3 a36 : 17.05.90 : 2.5.89 Test sheet Edition Replaces : ISO-4113 Test oil

: 9 400 230 089CQ Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

: RSV400...1100A0c2190 Governor design.

: 3915965 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CTA 8.3 Ltr. Engine

1st version kW : 157.0 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening .

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 11.1...11.3

100 s: (10.9...11.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 111.0...113.0 Del. quantity 1000 : (109.0...115.0)

cm3 : 3.50 Spread 1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 44...52

1st rack travel in: 11.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1190...1220 Speed

3rd rack travel in: 4.00

rpm : 1190...1220 Speed

4th rack travel in: 1300

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 23...31

Setting point w/out bumper spring

: 400 rpm Rack travel in mm: 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 12.00...12.10 ad speed rpm : 750

2nd speed

Rack travel in m: 13.30...13.50

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 130.5...134.5 1000 s: (128.5...136.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

Test sheet : CUM 8,3 a37 Edition : 17.05.90 : 2.5.89 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 089CR

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915952 Cust, part no.

Customer-spec. information Customer : C.D.C.

: 6 CT. 8.3 Ltr. Engine

: 138.0 1st version kW Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ___

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 11.40...11.50

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 106.5...108.5 Del.quantity 1000 : (104.5...110.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 49...57

1st rack travel in: 10.40

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

: 1215...1245 rpm Speed

3rd rack travel in: 4.00

: 1215...1245 Speed rom

4th rack travel in: 1300

: 0.30...1.40 Speed rom

LOW IDLE 1 Control Lever

position degrees: 27...35

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.5

Testing:

: 100 Speed rpm Minimum rack trave: 19.00 : 400 rom

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 11.40...11.50

2nd speed rpm : 750

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 125.0...129.0 1000 s: (123.0...131.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.40

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a38 : 17.05.90 Edition Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 089CS

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

: 3915953 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 127.0 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.10...11.20

Del.quantity cm3/: 10.0...10.2

100 s: (9.8...10.4)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 100.0...102.0 Del.quantity 1000 : (98.0...104.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 38...46

1st rack travel in: 10.10

rpm : 1040...1050 Speed

2nd rack travel in: 4.00

rpm : 1080...1110 Speed

3rd rack travel in: 4.00

rpm : 1080...1110 Speed

4th rack travel in: 1150

rom : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 21...29

Setting point w/out bumper spring

rom : 400 Rack travel in mm: 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1000 1st speed

Rack travel in m: 11.10...11.20 and speed rpm : 750

2nd speed rpm

Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 111.5...115.5 1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1040...1050 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Note remarks

: CUM 8,3 a39 : 17.05.90 Test sheet Edition Replaces : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 089CT

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1250A0C2190

: 3915979 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 ltr Engine

: 160.0 1st version kW : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5- 3- 6- 2- 4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1250 1st speed

Rack travel in mm : 12.00...12.10

Del.guantity cm3/: 12.1...12.3

100 s: (11.9...12.5)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-Lever position

Degree: -3 rpm : 800

Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1250 Speed

: 121.0...123.0 Del.quantity 1000 : (119.0...125.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

1st rack travel in: 11.00 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm : 1360...1390 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 26...34 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.80...6.00 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1250 Rack travel in m: 12.00...12.10 ad speed rpm : 750 2nd speed Rack travel in m: 12.40...12.60 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 750 Del.quantity cm3/: 122.0...126.0 1000 s: (120.0...128.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.00 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed

Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50)

Remarks:

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: CUM 8,3 a40 Test sheet : 17.05.90 Edition Replaces : 2.5.89

Test oil : ISO-4113

: 9 400 230 089cu Combination no.

Injection pump

Pump designation: PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV500...1050A0C2190

: 3915689 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 5 8.3 Engine

1st version kW : 123.0 : 2100 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

pressure, bar : 207...210

Orifice plate

: 0,6 diameter mm

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Lenath mm

(A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10501st speed

Rack travel in mm : 10.70...10.80

Del.guantity cm3/: 9.6...9.8

100 s: (9.4...10.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 500.02nd speed

Rack travel in mm: 5.5...5.7 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

96.5...98.5 1000 : (94.5...100.5) Del.quantity

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 53...61

Testina:

1st rack travel in: 9.70 Speed rpm : 1095...1105 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1250 rpm : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 35...44 Setting point w/out bumper spring : 500 rpm Rack travel in mm : 5.1 Testing: Speed rpm : 100 Minimum rack trave: 19.00 : 500 rpm Rack travel in mm : 5.50...5.70 TORQUE CONTROL Torque control curve - 1st version rpm : 1050 1st speed Rack travel in m: 10.70...10.80 2nd speed rpm : 750 Rack travel in m: 12.20...12.40 FUEL DELIVERY CHARACTERISTICS

1st version rpm : 750 Speed

Del.quantity cm3/: 116.0...120.0 1000 s: (114.0...122.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.70

rpm : 1095...1105 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0

1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 500 Rack travel in mm : 5.50...5.70 Del.quantity cm3/ : 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

MO1

Note remarks

: CUM 8,3 j 2 : 17.05.90 Test sheet **Edition** : 28.9.89 Replaces

: ISO-4113 Test oil

Combination no. : 9 400 230 0960A

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV425...900A4C2213

Cust. part no. : 3908845

Customer-spec. information Customer : C.D.C.

Engine : 6CT-I

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening .

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm : 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

rpm: 750 1st speed

Rack travel in mm : 14.00...14.10

Del.quantity cm3/: 14.2...14.4

100 s: (14.0...14.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 425.0 2nd speed Rack travel in mm: 6.0...6.2

Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 750 Speed

: 142.5...144.5 Del.quantity 1000 : (140.5...146.5)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 37...45

Testing:

1st rack travel in: 13.00 Speed rpm : 795...805

2nd rack travel in: 4.00

rpm : 825...855 Speed 3rd rack travel in: 4.00 rpm : 830...860 Speed LOW IDLE 1 Control lever position degrees: 19...27 Setting point w/out bumper spring rpm : 425 Speed Rack travel in mm : 5.6 Testing: Speed : 100 rpm Minimum rack trave: 19.00 rpm : 425 Speed Rack travel in mm : 6.00...6.20 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 13.00 rpm : 795...805 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 425 Speed Rack travel in mm : 6.00...6.20 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1 Adjust stop lever to 0.5...1.0 mm before stop.

APPLICATION

Generator

Note remarks

Test sheet : CUM 8,3 a12 : 08.06.90 Edition : 1.2.90 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 097

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

-8R

Governer no. : 9 420 234 137

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

: 156.6 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina (1997)

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00x2.00x600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

Phasina : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.30...12.40

Del.quantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.4Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.6...5.8 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 122.5...124.5 Del.quantity

1000 : (120.5...126.5)

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 40...48

Testing:

MO4

1st rack travel in: 11.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1185...1215 Speed 3rd rack travel in: 4.00 rpm : 1195...1225 Speed 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 21...29 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: C.D.C. # 3915959

Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

Note remarks

: CUM 8,3 a59 : 17.05.90 Test sheet Edition : 2.5.89 Replaces

Test oil : ISO-4113

Combination no. : 9 400 230 097BA

Injection pump

Pump designation : PES6A100D32D/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

: 9 420 234 Governer no.

: 3911956 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 CT 8.3

: 151.4 1st version kW : 2000 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90

: (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.9...12.1

100 s: (11.7...12.3)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 Speed rpm : ?.

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 119.0...121.0 1000 : (117.0...123.0) Del.quantity

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 34...42

Testing:

1st rack travel in: 11.10

rpm : 1040...1050

2nd rack travel in: 4.00 rpm : 1075...1105 Speed 3rd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 17...25 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.2 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 Speed rpm : 1040...1050 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a44 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 097BB Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1050A0C2190 : 9 420 234 Governer no. : 3913289 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 0 8.3 Engine : 148.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate : 0,6 diameter mm Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values

per values

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

: 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 Phasing : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING 1st speed rpm : 1050Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.02nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 : 122.0...124.0 Del.quantity 1000 : (120.0...126.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 43...51

Test pressure, bar: 27...29

Testing:

1st rack travel in: 11.40

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

3rd rack travel in: 4.00

rpm : 1135...1165 Speed

4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1

Control lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.9

Testing:

rpm : 100 Speed

Minimum rack trave: 19.00

rpm : 400

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.40...12.50 2nd speed rpm : 750

Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rpm

Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

Speed rpm : 1090...1100

STARTING FUEL DELIVERY

rpm : 100 Speed

Speed rpm: 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 400 Rack travel in mm : 5.30...5.50

Del.guantity cm3/: 14.0...18.0

1000 s: (11.5...20.5)

cm3 : 3.50 1000 s: (5.50) Spread

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control

spring retainer.

Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

M09

Note remarks

: CUM 8,3 a45 : 17.05.90 Test sheet Edition Replaces : 2.5.89

Test oil : ISO-4113

Combination no. : 9 400 230 097BC

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1100A0c2190 Governor design.

: 0 420 233 Governer no.

: 3914056 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 CT 8.3 Engine

1st version kW : 156.6 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0.6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 12.30...12.40

Del.guantity cm3/: 12.2...12.4

100 s: (12.0...12.6)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.6...5.8
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 122.5...124.5 : (120.5...126.5) Del.quantity 1000

cm3 : 3.50Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 48...56

Testing: 1st rack travel in: 11.30 rpm : 1145...1155 Speed 2nd rack travel in: 4.00 Speed rpm : 1240...1270 3rd rack travel in: 4.00 Speed rpm : 1240...1270 4th rack travel in: 1300 Speed rpm : 0.30...1.40 LOW IDLE 1 Control Lever position degrees: 28...36 Setting point w/out bumper spring Speed : 400 rpm Rack travel in mm: 5.2 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.30 rpm : 1145...1155 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm: 5.60...5.80

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a46 : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113 Combination no. : 9 400 230 097B0 Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1000A0C2190 : 9 420 234 Governer no. : 3915963 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 CT 8.3 Engine 1st version kW : 151.4 : 2000 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant. per values ____ BEGINNING OF DELIVERY M12

Test pressure, bar: 27...29 : 2.80...2.90 : (2.75...2.95) Prestroke mm Rack travel in mm : 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasina Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 10001st speed Rack travel in mm : 12.10...12.20 Del.quantity cm3/: 11.9...12.1 100 s: (11.7...12.3) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.02nd speed Rack travel in mm : 5.6...5.8 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1000 Speed : 119.0...121.0 Del.quantity 1000 : (117.0...123.0) : 3.50 cm3 Spread 1000 : (6.00) RATED SPEED

1st version Control lever position degrees: 34...42

Testing: 1st rack travel in: 11.10 Speed rpm : 1040...1050 2nd rack travel in: 4.00 rpm : 1075...1105 Speed 3rd rack travel in: 4.00 rpm : 1080...1110 Speed 4th rack travel in: 1150 rpm : 0.30...1.40 Speed LOW IDLE 1 Control Lever position degrees: 17...25 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm: 5.2 Testing: : 100 Speed ווארים Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.60...5.80 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 11.10 rpm : 1040...1050 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark at 10° cam rotation angle after start of delivery, cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a47 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113 : 9 400 230 097BE Combination no. Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1050A0C2190 : 9 420 234 Governer no. : 3915976 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 0 8.3 Engine : 148.0 1st version kW Rated speed : 2100 TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening . pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00X2.00X600 x Length mm

Test pressure, bar: 27...29 Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1050 1st speed Rack travel in mm : 12.40...12.50 Del.quantity cm3/: 12.2...12.4 100 s: (12.0...12.6) Spread cm3 : 0.3100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm: 5.3...5.5 Del.quantity cm3/: 1.4...1.8 100 s: (1.1...2.0) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed : 122.0...124.0 Del.quantity 1000 : (120.0...126.0) cm3 : 3.50 Spread 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 43...51

BEGINNING OF DELIVERY

per values

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. Testina:

1st rack travel in: 11.40 Speed rpm : 1090...1100

2nd rack travel in: 4.00

rpm : 1135...1165 Speed

3rd rack travel in: 4.00

rom : 1135...1165 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1

Control Lever

position degrees: 23...31

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 4.9

Testing:

Speed : 100 rpm

Minimum rack trave: 19.00 Speed rpm : 400

Rack travel in mm : 5.30...5.50

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 12.40...12.50 2nd speed rpm : 750 Rack travel in m: 13.70...13.90

FUEL DELIVERY CHARACTERISTICS

1st version

: 750 Speed rom

Del.quantity cm3/: 141.0...145.0 1000 s: (139.0...147.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.40

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

: 400 Speed rpm

Rack travel in mm : 5.30...5.50

Del.guantity cm3/: 14.0...18.0

1000 s: (11.5...20.5) cm3 : 3.50

Spread

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark at 10° cam rotation angle after start of delivery,

cylinder 1

Note remarks

: CUM 8,3 a48 Test sheet : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 099AA Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1100A0C2190

Cust. part no. : 3911948

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 111.9 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1000

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 105.5...107.5 Del.quantity

1000 : (103.5...109.5)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 42...50

1st rack travel in: 10.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1250 Speed rpm : 0.30...1.40LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testing: rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3: 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a49 : 17.05.90 Test sheet Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 099AB Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

EP type number : 9 410 230 025

Governor

Governor design. : RSV400...1000A0C2190

: 3911951 Cust. part no.

Customer-spec. information Customer : C.D.C.

: 6 C 8.3 Engine

1st version kW : 105.9 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38. . 42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800 Speed Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed : 1000 rpm

: 98.5...100.5 : (96.5...102.5) Del.quantity 1000

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 36...44

1st rack travel in: 9.80 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 : 1090...1120 Speed rpm 4th rack travel in: 1200 Speed rpm : 0.30...1.40 LOW IDLE 1 Control lever position degrees: 20...28 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.4 Testing: Speed : 100 man Minimum rack trave: 19.00 : 400 Speed rpm Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed STARTING FUEL DELIVERY : 100 Speed rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.501000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a50 Test sheet : 17.05.90 Edition Replaces : 2.5.89

Test oil : ISO-4113

Combination no. : 9 400 230 099AC

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1250A0C2190

: 3911947 Cust. part no.

Customer-spec. information : C.D.C. Customer

: 6 C 8.3 Engine

1st version kW : 119.3 : 2500 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

x Length mm : 6.00X2.00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rom: 1250 1st speed

Rack travel in mm : 11.30...11.40

Del.quantity cm3/: 10.6...10.8

100 s: (10.4...11.0)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.02nd speed

Rack travel in mm: 5.6...5.8 Del.quantity cm3/: 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STO?

1st version

Speed rpm : 1250

: 106.0...108.0 Del.quantity 1000 : (104.0...110.0)

cm3 : 3.50 Spread

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 51...59

Testing:

1st rack travel in: 10.30 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 Speed rpm : 1355...1385 3rd rack travel in: 4.00 Speed rpm : 1355...1385 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring : 400 rpm Rack travel in mm: 5.2 Testing: : 100 Speed rom Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.60...5.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1290...1300 Speed STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE : 400 Speed rpm Rack travel in mm : 5.60...5.80 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet Edition Replaces

: CUM 8,3 a51 : 17.05.90 : 2.5.89 Test oil : ISO-4113

Combination no. : 9 400 230 099AD

Injection pump

Pump designation : PES6A100D320/3RS2691 : 9 410 230 025

EP type number

Governor Governor design. : RSV400...1100A0c2190

Cust. part no. : 3911949

Customer-spec. information Customer : C.D.C.

: 6 C 8.3

: 98.4

1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

Engine

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening 1

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter

x Wall thickness

x Length mm : 6.00X2,00X600

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.00...10.10

Del.quantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed

Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3 Spread

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

Speed rpm: 800 Rack travel in mm: 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 88.0...90.0

1000 : (86.0...92.0)

: 3.50 Spread cm3

1000 : (6.00)

RATED SPEED

1st version Control lever

position degrees: 45...54

Testing:

1st rack travel in: 9.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

3rd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

Speed rpm : 400 Rack travel in mm : 5.4

Testing:

rpm : 100 Speed Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1100 1st speed

Rack travel in m: 10.00...10.10

2nd speed rpm : 800

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 9.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm: 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

cm3 : 3.50Spread 1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of délivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a52 : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AE Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1050A0C2190 : 3911950 Cust. part no. Customer-spec. information : C.D.C. Customer : 6 0 8.3 Engine : 109.6 : 2100 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Openina : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014

: 6.00x2.00x600

(A) Injection pump setting values

per values ____

Test pressure, bar: 27...29

BEGINNING OF DELIVERY

Insp. values in parentheses Set equal delivery quant.

: (2.75...2.95) Rack travel in mm: 10.50 : 1-5-3-6-2-4 firing order : 0-60-120-180-240-300 Phasing Tolerance $+ - ^{\circ} : 0.50 (0.75)$ Time to cyl. no. : 1 BASIC SETTING rom: 1050 1st speed Rack travel in mm : 11.40...11.50 Del.quantity cm3/: 10.8...11.0 100 s: (10.6...11.2) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.02nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x :? FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed Del.quantity : 108.5...112.5) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 41...49 Testing:

Prestroke mm

: 2.80...2.90

Outside diameter x Wall thickness

x Length mm

1st rack travel in: 10.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 rom : 0.30...1.40Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring Speed rpm : 400 Rack travel in mm : 5.4 Testing: Speed : 100 rom Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/ : 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/ : 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a53 : 17.05.90 : 2.5.89 Edition Replaces Test oil : ISO-4113 : 9 400 230 099AF Combination no. Injection pump Pump designation : PES6A1000320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1100A0C2190 : 3915955 Cust. part no. Customer-spec. information Customer : C.D.C. : 6 C 8.3 Engine : 111.9 1st version kW Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Openina : 207...210 pressure, bar Orifice plate diameter mm : 0.6 Test Lines : 1 680 750 014 Outside diameter

x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

BEGINNING OF DELIVERY Test pressure, bar: 27...29

per values

: 2.80...2.90 : (2.75...2.95) Prestroke mm

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance $+ - ^{\circ} : 0.50 (0.75)$

Time to cyl. no. : 1

BASIC SETTING

rpm: 1000 1st speed

Rack travel in mm : 11.30...11.40

Del.guantity cm3/: 10.5...10.7

100 s: (10.3...10.9)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm: 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3

Spread 100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position Degree: -3

rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

: 105.5...107.5 Del.quantity : (103.5...109.5) : 3.50 1000

cm3

Spread 1000 : (6.00)

RATED SPEED

1st version Control Lever

position degrees: 42...50

Testing:

1st rack travel in: 10.30 rpm : 1140...1150 Speed 2nd rack travel in: 4.00 rpm : 1195...1225 Speed 3rd rack travel in: 4.00 rpm : 1205...1235 Speed 4th rack travel in: 1250 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring rpm : 400 Rack travel in mm: 5.4 Testina: : 100 Speed rom Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm: 5.80...5.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1140...1150 Speed STARTING FUEL DELIVERY : 100 Speed man m Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00 LOW IDLE rpm : 400 Speed Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

: CUM 8,3 a54 : 17.05.90 Test sheet Edition : 2.5.89 Replaces : ISO-4113 Test oil

: 9 400 230 099AG Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

: RSV400...1000A0c2190 Governor design.

: 3915958 Cust. part no.

Customer-spec. information Customer : C.D.C.

Engine : 6 0 8.3

: 105.9 : 2000 1st version kW Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

assembly : 1 688 901 017

Openina

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test Lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

rpm : 10001st speed

Rack travel in mm : 10.80...10.90

Del.quantity cm3/: 9.8...10.0

100 s: (9.6...10.2)

Spread cm3 : 0.3

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

cm3 : 0.3Spread

100 s: (0.5)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3 rpm : 800 Speed

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x :?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1000 Speed

Del.quantity : 98.5...100.5 : (96.5...102.5) 1000

> cm3 : 3.50

1000 : (6.00)

RATED SPEED

Spread

1st version

Control lever

position degrees: 36...44

Testing:

1st rack travel in: 9.80 rpm : 1040...1050 Speed 2nd rack travel in: 4.00 rpm : 1085...1115 Speed 3rd rack travel in: 4.00 rpm : 1090...1120 Speed 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 20.,.28 Setting point w/out bumper spring rpm : 400 Speed Rack travel in mm: 5.4 Testina: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 9.80 rpm : 1040...1050 Speed INTERMEDIATE RATED SPEED Rack travel in mm: 4.00 STARTING FUEL DELIVERY rpm : 100 Speed Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle

after start of delivery cyl. 1

NO1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 a55 : 17.05.90 Test sheet Edition Replaces : 2.5.89 Test oil : ISO-4113 : 9 400 230 099AH Combination no. Injection pump Pump designation : PES6A1000320/3RS2691 : 9 410 230 025 EP type number Governor Governor design. : RSV400...1250A0C2190 : 3915954 Cust. part no. Customer-spec. information : C.D.C. Customer Engine : 6 0 8.3 : 119.3 1st version kW : 2500 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder assembly : 1 688 901 017 Opening : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness : 6.00x2.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

Prestroke mm : 2.80...2.90 : (2.75...2.95) Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. BASIC SETTING rpm: 1250 1st speed Rack travel in mm : 11.30...11.40 Del.guantity cm3/: 10.6...10.8 100 s: (10.4...11.0) cm3 : 0.3Spread 100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.6...5.8

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2) cm3 : 0.3 Spread 100 s: (0.5) GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Speed Rack travel in mm : 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL LOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1250 Speed : 106.0...108.0 Del.quantity 1000 : (104.0...110.0) : 3.50 Spread cm3 1000 : (6.00) RATED SPEED 1st version Control lever position degrees: 51...59

Testing:

BEGINNING OF DELIVERY Test pressure, bar: 27...29

per values

1st rack travel in: 10.30 rpm : 1290...1300 Speed 2nd rack travel in: 4.00 rpm : 1355...1385 Speed 3rd rack travel in: 4.00 Speed rpm: 1355...1385 4th rack travel in: 1450 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 27...35 Setting point w/out bumper spring rpm : 400 Speed Rack travel in mm : 5.2 Testing: Speed : 100 rpm Minimum rack trave: 19.00 Speed rpm : 400 Rack travel in mm : 5.60...5.80 BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 10.30 rpm : 1290...1300 Speed STARTING FUEL DELIVERY Speed : 100 rpm Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm: 5.60...5.80 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) cm3 : 3.50 Spread 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Note remarks

Test sheet : CUM 8,3 a56 : 17.05.90 Edition : 2.5.89 Replaces Test oil : ISO-4113

: 9 400 230 099AI Combination no.

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 025 EP type number

Governor

Governor design. : RSV400...1100A0C2190

: 3915956 Cust. part no.

Customer—spec. information Customer : C.D.C.

: 6 C 8.3 Engine

: 98.4 1st version kW : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

: 207...210 pressure, bar

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95)

Rack travel in mm : 10.50

: 1-5-3-6-2-4 Firing order

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no.

BASIC SETTING

rpm: 1100 1st speed

Rack travel in mm : 10.00...10.10

Del.guantity cm3/: 8.8...9.0

100 s: (8.6...9.2)

cm3 : 0.3Spread

100 s: (0.6)

rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0

Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2)

cm3 : 0.3Spread 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position Degree: -3

rpm : 800 Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

Speed rpm : 1100

: 88.0...90.0 Del.quantity 1000 : (85.0...92.0)

: 3.50 cm3

Spread 1000 : (6.00)

RATED SPEED

1st version

Control Lever

position degrees: 45...54

Testing:

NO4

1st rack travel in: 9.00

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

rpm : 1180...1210 Speed

3rd rack travel in: 4.00

rpm : 1185...1215 Speed

4th rack travel in: 1250

rpm : 0.30...1.40 Speed

LOW IDLE 1 Control lever

position degrees: 26...34

Setting point w/out bumper spring

: 400 rom Rack travel in mm: 5.4

Testing:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400

Rack travel in mm : 5.80...6.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100

Rack travel in m: 10.00...10.10

: 800 2nd speed Lbw

Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 800 Speed

Del.quantity cm3/: 92.0...96.0 1000 s: (90.0...98.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00

rpm : 1140...1150 Speed

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm: 19.00...21.00

LOW IDLE

rpm : 400 Speed

Rack travel in mm : 5.80...6.00

Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5)

Spread

cm3 : 3.50

1000 s: (5.50)

Remarks:

Adjust stop lever to 0.5...1.0 mm

before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in

full-load delivery with torque-control

spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

NO5

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : CUM 8,3 a57 : 17.05.90 Edition : 2.5.89 Replaces : ISO-4113 Test oil Combination no. : 9 400 230 099AJ Injection pump Pump designation : PES6A100D320/3RS2691 EP type number : 9 410 230 025 Governor Governor design. : RSV400...1050A0c2190 Cust. part no. : 3915957 Customer-spec. information : C.D.C. Customer : 6 C 8.3 Engine 1st version kW : 109.6 : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly Opening pressure, bar : 207...210 Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600 (A) Injection pump setting values

Insp. values in parentheses Set equal delivery quant.

per values __

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90 : (2.75...2.95)
Rack travel in mm : 10.50 _ : 1-5-3-6-2-4 Firing order Phasing : 0-60-120-180-240-300 Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm : 10501st speed Rack travel in mm : 11.40...11.50 Del.quantity cm3/: 10.8...11.0 100 s: (10.6...11.2) Spread cm3 : 0.3100 s: (0.6) rpm : 400.0 2nd speed Rack travel in mm : 5.8...6.0 Del.quantity cm3/: 1.6...2.0 100 s: (1.3...2.2) cm3 : 0.3 100 s: (0.5) Spread GUIDE SLEEVE POSITION Control-lever position Degree: -3 rpm : 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : ? FULL LOAD DELIV. AT FULL LOAD STOP 1st version Speed rpm : 1050 : 108.5...110.5 : (106.5...112.5) Del.quantity 1000 cm3 : 3.50 1000 : (6.00) Spread RATED SPEED 1st version Control lever position degrees: 41...49 Testing:

1st rack travel in: 10.40 rpm : 1090...1100 Speed 2nd rack travel in: 4.00 rpm : 1140...1170 Speed 3rd rack travel in: 4.00 rpm : 1150...1180 Speed 4th rack travel in: 1200 rpm : 0.30...1.40 Speed LOW IDLE 1 Control lever position degrees: 23...31 Setting point w/out bumper spring : 400 rpm Rack travel in mm : 5.4 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 400 Speed Rack travel in mm : 5.80...6.00 **BREAKAWAY** 1st version 1mm rack travel less than full load rack tr: 10.40 rpm : 1090...1100 Speed STARTING FUEL DELIVERY Speed rpm : 100 Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0) Rack travel in mm : 19.00...21.00 LOW IDLE Speed rpm : 400 Rack travel in mm : 5.80...6.00 Del.quantity cm3/: 16.0...20.0 1000 s: (13.5...22.5) Spread cm3 : 3.50 1000 s: (5.50) Remarks: Adjust stop lever to 0.5...1.0 mm before stop. Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS : 2.80...2.90 : (2.75...2.95) Prestroke mm Note remarks Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : CUM 8,3 k : 08.06.90 Test sheet Edition : 1.2.90 Replaces Test oil : ISO-4113 Phasing : 0-60-120-180-240-300 Combination no. : 9 400 230 102 : 0.50 (0.75) Tolerance + - ° Injection pump Pump designation : PES6A100D320/3RS2691 Time to cyl. no. : 1 : 9 410 230 025 EP type number BASIC SETTING Governor Governor design. : RSV400...1050A0c2216 1st speed rpm: 1050 : 9 420 234 146 Governer no. Rack travel in mm : 11.10...11.20 Customer-spec. information Del.quantity cm3/: 10.0...10.2 Customer : C.D.C. : 6 CTA 8.3 100 s: (9.8...10.4) Engine : 141.7 cm3 : 0.41st version kW Spread : 2100 Rated speed 100 s: (0.6) TEST BENCH REQUIREMENTS 2nd speed rpm : 400.0 Rack travel in mm : 5.9...6.1 Test oil Del.quantity cm3/: 1.8...2.2 100 s: (1.5...2.4) inlet temp. °C : 38...42 Overflow valve Spread cm3 : 0.6: 1 417 413 047 100 s: (0.8) GUIDE SLEEVE POSITION Indet press., bar: 1.50 Control-lever position Test nozzle holder Degree: -3 : 1 688 901 017 rpm : 800 assembly Speed Rack travel in mm : 0.30...0.70 Opening : 207...210 Governor spring pre-tension pressure, bar Click setting x : ? Orifice plate FULL LOAD DELIV. AT FULL LOAD STOP diameter mm : 0,6 1st version Test lines : 1 680 750 014 Speed rpm : 1050 : 100.5...102.5 Del.quantity 1000 : (98.5...104.5) Outside diameter x Wall thickness Spread : 4.00 cm3x Length mm : 6.00X2.00X600 1000 : (6.50) (A) Injection pump setting values RATED SPEED Insp. values in parentheses Set equal delivery quant. 1st version

Control lever

Testing:

position degrees: 43...51

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

1st rack travel in: 10.10

rpm : 1090...1100 Speed

2nd rack travel in: 4.00

rpm : 1160...1190 Speed

3rd rack travel in: 4.00

rpm : 1160...1190 Speed

4th rack travel in: 1250

rpm : 0.30...1.40Speed

LOW IDLE 1 Control lever

position degrees: 25...34

Setting point w/out bumper spring

rpm : 400 Rack travel in mm: 5.5

Testina:

Speed rpm : 100 Minimum rack trave: 19.00 rpm : 400 Speed

Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1050

Rack travel in m: 11.10...11.20 nd speed rpm : 750

2nd speed

Rack travel in m: 12.60...12.80

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/: 126.0...130.0 1000 s: (124.0...132.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

rpm : 1090...1100 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed

rpm : 400

Rack travel in mm : 5.90...6.10 Del.quantity cm3/: 18.0...22.0 1000 s: (15.5...24.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C. # 3915968

Adjust stop lever to 0.5...1.0 mm before stop.

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks : CUM 8,3 b 3 : 08.06.90 Test sheet Edition : 1.2.90 Replaces : ISO-4113 Test oil : 9 400 230 107 Combination no. Injection pump Pump designation : PES6A100D320/3RS2691 : 9 410 230 028 EP type number Governor Governor design. : RQV350...1200AB1233R : 9 420 231 018 Governer no. Customer-spec. information Customer : C.D.C : 6CT830 Engine : 157.0 1st version kW : 2400 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 417 413 047 Inlet press., bar: 1.50 Test nozzle holder : 1 688 901 017 assembly **Opening** : 207...210 pressure, bar Orifice plate diameter mm : 0,6 Test lines : 1 680 750 014 Outside diameter x Wall thickness

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm : (2.75...2.95) Rack travel in mm: 10.50 : 1-5-3-6-2-4 Firing order : 0-60-120-180-240-300 Phasing Tolerance + - ° : 0.50 (0.75) Time to cyl. no. : 1 BASIC SETTING rpm: 1200 1st speed Rack travel in mm : 10.80...10.90 Del.quantity cm3/: 11.3...11.5 100 s: (11.1...11.7) cm3 : 0.4Spread 100 s: (0.6) rpm : 350.0 2nd speed Rack travel in mm : 4.6...4.8 Del.quantity cm3/ : 1.6...2.0 100 s: (1.3...2.2) Spread cm3 : 0.6100 s: (0.8) (B) Setting of injection pump with governor GUIDE SLEEVE TRAVEL rpm : 250 1st speed travel mm : 0.00...0.20 rpm : 350 2nd speed : 1.00...1.50 travel mm rpm : 450 3rd speed : 1.90...2.40 travel mm rpm : 1200 4th speed : 6.90...6.90 travel mm 5th speed rpm : 1350 : 8.15...8.65 travel mm GUIDE SLEEVE POSITION Control-lever position Degree: -1 rpm : 1435 Speed Rack travel in mm : 6.70...9.30 FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed

rpm : 1200

Aneroid pressure h: 700

: 113.0...115.0 Del.quantity

1000 : (111.0...117.0)

cm3 : 4.00Spread

1000 : (6.50)

RATED SPEED

1st version Control lever

position degrees: 40...46

Testing:

1st rack travel in: 9.80

rpm : 1240...1250 Speed

2nd rack travel in: 4.00 Speed rpm: 1315...1345 4th rack travel in: 1400

Speed rpm : 0.00...1.00

LOW IDLE 1 Control Lever

position degrees: 9...15 Speed rpm : 350

Speed

Rack travel in mm : 4.60...4.80

Aneroid/Altitude Compensator Test

1st version

Setting

: 500 Speed rpm hPa : 240 Pressure

: 9.70...9.80 Rack travel mm

Measurement

 $1/\min : 500$ Speed

1st pressure hPa : -

Rack travel in m: 9.30...9.50

2nd pressure hPa : 333

Rack travel in m: 10.20...10.60

START CUT-OUT

1/min: 290 (300) Speed

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -

Speed rpm : 500 Del.quantity cm3/: 84.5...88.5

1000 s: (82.5...90.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.80

rpm : 1240...1250 Speed

STARTING FUEL DELIVERY

Speed rpm : 100 Del.quantity cm3/ : 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350 Rack travel in mm : 4.60...4.80 Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

cm3 : 6.00Spread 1000 s: (8.00)

Remarks:

: C.D.C. # 3908558

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: CUM 8,3 a61 : 08.08.90 Test sheet Edition : 1.2.90 Replaces : ISO-4113 Test oil

Combination no. : 9 400 230 110

Injection pump

Pump designation : PES6A100D320/3RS2691

: 9 410 230 030 EP type number

Governor

: RSV450...1100A0c2190 Governor design.

-42R

: 0 420 233 248 Governer no.

Customer-spec. information Customer : C.D.C.

: 6CT830 Engine

1st version kW : 150.6 : 2200 Rated speed

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 047

Inlet press., bar: 1.50

Test nozzle holder

: 1 688 901 017 assembly

Opening

pressure, bar : 207...210

Orifice plate

diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter

x Wall thickness

: 6.00X2.00X600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure, bar: 27...29

: 2.80...2.90 Prestroke mm

: (2.75...2.95)

Rack travel in mm: 10.50

: 1-5-3-6-2-4 Firing order

: 0-60-120-180-240-300 Phasing

Phasing

: 0.50 (0.75) Tolerance + - °

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm: 1100

Rack travel in mm : 12.10...12.20

Del.quantity cm3/: 11.8...12.0

100 s: (11.6...12.2)

Spread cm3 : 0.4

100 s: (0.6)

2nd speed rpm : 450.0 Rack travel in mm: 5.7...5.9
Del.quantity cm3/: 1.6...2.0
100 s: (1.3...2.2)
Spread cm3: 0.6

100 s: (0.8)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1100 Speed

: 118.5...120.5 1000 : (116.5...122.5) Del.quantity

: 4.00 Spread cm3

1000 : (6.50)

RATED SPEED

1st version

Control lever

position degrees: 42...50

Testing:

1st rack travel in: 11.10

rpm : 1140...1150 Speed

2nd rack travel in: 4.00

Speed rpm : 1190...1220

3rd rack travel in: 4.00

Speed rpm : 1195...1225 4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 22...30

Setting point w/out buncer spring

rpm : 450 Speed Rack travel in mm : 5.3

Testina:

: 100 Speed rpm

Minimum rack trave: 19.00 rpm : 450 Speed

Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1100
Rack travel in m: 12.10...12.20
2nd speed rpm : 750

Rack travel in m: 13.20...13.40

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750 Del.quantity cm3/: 133.0...137.0

1000 s: (131.0...139.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.10

Speed rpm : 1140...1150

STARTING FUEL DELIVERY

rpm : 100 Speed

Del.quantity cm3/: 135.0...155.0 1000 s: (130.0...160.0)

Rack travel in mm : 20.00...21.00

LOW IDLE

: 450 Speed rpm

Rack travel in mm : 5.70...5.90

Del.quantity cm3/: 16.0...20.0

1000 s: (13.5...22.5)

Spread cm3 : 6.00

1000 s: (8.00)

Remarks:

: C.D.C # 3915685

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Start-of-delivery mark 11° cam angle after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm before stop.

Note remarks

: MAC 11,1 j8 Test sheet : 31.7.70 Edition

Replaces

Test oil : ISO-4113

Combination no. : 9 400 231 201

Injection pump

Pump designation: PES6P120A720RS6016-1

EP type number : 9 410 231 034

Governor

Governor design. : RQV325...850PA737K

: 9 420 232 076 Governer no.

Cust. part no.

Customer-spec. information

Customer : MACK

: E6-300 4VH Engine

: 224.0 1st version kW : 1700 Rated speed

TEST BENCH REQUIREMENTS

Test oil

: 38...42 inlet temp. °C

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.2

Test nozzle holder

assembly

Openina

pressure, bar : 295...305

Test lines : 9 681 271 032

Outside diameter

x Wall thickness

: 6.35X1.70X840.0 x Length mm

(A) Injection pump setting values Insp. values in parentheses

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm: 13.40...13.50

Del.quantity cm3/: 18.3...18.5

100 s: (18.1...18.7)

Spread cm3 : 0.5

100 s: (0.75)

2nd speed rpm : 325

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 2.9...3.5 100 s: (2.7...3.7) Spread cm3 : 1 0

100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250 : 0.40...0.90

travel mm rpm : 350 2nd speed

: 1.85...2.35 travel mm

3rd speed : 450 rpm

: 2.90...3.40 travel mm

4th speed : 850 rpm

: 6.40...6.40 travel mm

: 1000 5th speed rpm

: 8.10...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1 rpm : 1070

Rack travel in mm: 9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 850 Speed

: 183.5...185.5 Del.quantity

1000 : (181.5...187.5)

RATED SPEED

1st version

Control lever

position degrees: 54...60

Testing:

1st rack travel in: 12.40 rpm : 890...900 Speed

2nd rack travel in: 4.00

Speed rpm : 995...1025 4th rack travel in: 1050

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...16

Testina:

: 250 Speed rpm Minimum rack trave: 6.60 Speed : 325 rpm

Rack travel in mm : 4.70...4.90

Rack travel in mm : 2.00

Speed rom : 430...490

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 13.40...13.50

rpm : 700 2nd speed

Rack travel in m: 13.80...13.90

3rd speed rpm : 600

Rack travel in m: 14.25...14.35

4th speed rpm : 500

Rack travel in m: 13.75...13.85

FUEL DELIVERY CHARACTERISTICS

1st version

rpm : 700 Speed

Del.quantity cm3/: -1000 s: (199.0...209.0)

Speed rpm : 600 Del.quantity cm3/: 217.0...226.0 1000 s: (215.0...228.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 12.40

rpm : 890...900 Speed

STARTING FUEL DELIVERY

: 100 Speed COM

Del.quantity cm3/: 180.0...220.0 1000 s: (170.0...230.0)

Rack travel in mm : 11.60...11.80

LOW IDLE

Speed rpm : 325 Rack travel in mm : 4.70...4.90 Del.quantity cm3/ : 29.0...35.0 1000 s: (27.0...37.0)

Remarks:

: MACK # 313 GC 5150P9

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to testing of the injection pump assembly with the genuine engine/nozzle-and-holder

assembly

Note remarks

: MAC 11,1 j2 Test sheet : 6.8.50 Edition : 23,3,90 Replaces

: ISC-4113 Test oil

: 9 400 231 211 Combination no.

Injection pump

Pump designation : PES6P120A720RS6016-1

: 9 410 231 034 EP type number

Governor

Governor design. : RQV325...850PA721-2K

Cust. part no.

Customer-spec. information Customer : MACK

: E6-300 4VH Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 2 417 413 011

Inlet press., bar: 0.2

Test nozzle holder assembly

Opening

: 295...305 pressure, bar

: 9 681 230 735 Test Lines

Outside diameter

x Wall thickness

: 6.35X1.70X840.0 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant.

per values ____

BEGINNING OF DELIVERY

: 2.95...3.05 Prestroke mm

: (2.90...3.10)

Rack travel in mm: 10.50

Firing order : 1-5-3-6-2-4

: 0-60-120-180-240-300 Phasina

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 850 1st speed

Rack travel in mm: 13.40...13.50

Del.quantity cm3/: 18.3...18.5

100 s: (18.1...18.8)

Spread cm3 : 0.5

100 s: (0.75)

2nd speed rpm : 325
Rack travel in mm : 4.70...4.90
Del.quantity cm3/: 2.9...3.5

100 s: (2.7...3.7)

cm3 : 1.0 Spread 100 s: (1.2)

(B) Setting of injection pump

with governor

GUIDE SLEEVE TRAVEL

rpm : 250 1st speed

: 0.40...0.90 travel mm

rpm : 350 2nd speed

: 1.85...2.35 travel mm

rpm : 450 3rd speed

: 2.90...3.40 travel mm

rpm : 850 4th speed

: 6.40...6.40 travel mm

rpm : 1000 5th speed

: 8.10...8.60 travel mm

GUIDE SLEEVE POSITION

Control-lever position Degree: -1

rpm : 1070

Speed Rack travel in mm: 9.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Del.quantity : 183.5...185.5

1000 : (181.0...188.0)

RATED SPEED

1st version

Control lever

position degrees: 54...60

Testing:

1st rack travel in: 12.40 rpm : 890...900 Speed 2nd rack travel in: 4.00

rpm : 995...1025 Speed

4th rack travel in: 1050

Speed rpm : 0.00...1.00

LOW IDLE 1 Control lever

position degrees: 10...16

Testina:

Speed : 250 **MQ1** Minimum rack trave: 6.60 rpm : 325

Rack travel in mm : 4.70...4.90 Rack travel in mm : 2.00

: 430...490 Speed rom

TORQUE CONTROL

Dimension a mm :?

Torque control curve - 1st version

rpm : 850 1st speed

Rack travel in m: 13.40...13.50

2nd speed rpm : 700

Rack travel in m: 13.80...13.90 d speed rpm : 600

3rd speed

Rack travel in m: 14.25...14.35

rpm : 500 4th speed

Rack travel in m: 13.75...13.85

FUEL DELIVERY CHARACTERISTICS

1st version

Speed : 700 rpm

Del.quantity cm3/: -1000 s: (197.0...211.0)

Speed rom : 600

Del.quantity cm3/: 217.0...226.0 1000 s: (215.0...228.0)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 12.40 rpm : 890...900 Speed

STARTING FUEL DELIVERY

: 100 Speed rpm

Del.quantity cm3/: 180.0...220.0

1000 s: (170.0...230.0)

LOW IDLE

rpm : 325 Speed

Rack travel in mm : 4.70...4.90 Del.quantity cm3/: 29.0...35.0

1000 s: (27.0...37.0)

Remarks:

: MACK # 313 GC5150P15

See VDT-I-MAC 002

PLE dimension = 0.740'' - 0.820''

The test specifications apply to testing of the injection pump assembly with the genuine engine/nozzle-and-holder assembly

BOSCH INJ. PUMP TEST SPECIFICATIONS Note remarks Test sheet : DEE 7,6 g 8 : 08.06.90 Edition : 1.2.90 Replaces Test oil : ISO-4113 : 9 400 231 236 Combination no. Injection pump Pump designation : PES6P110A720RS3083-1 EP type number : 9 410 231 027 Covernor Governor design. : RSV475...1050P2A455-: 9 420 234 172 Governer no. Customer-spec. information : JOHN DEERE Customer : 6466A Engine : 151.0 1st version kW : 2100 Rated speed TEST BENCH REQUIREMENTS Test oil inlet temp. °C : 38...42 Overflow valve : 1 457 413 010 Inlet press., bar: 1.50 Test nozzle holder : 0 681 343 009 assembly Opening : 172...175 pressure, bar : 1 680 750 015 Test lines Outside diameter x Wall thickness : 6.00x3.00x600 x Length mm (A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values BEGINNING OF DELIVERY Test pressure, bar: 27...29

: 3.45...3.55

: (3.40...3.60)

Rack travel in mm : 10.50 Firing order : 1-5-3-6-2-4 : 0-60-120-180-240-300 Phasina : 0.50 (0.75) Tolerance + - ° Time to cyl. no. : 1 BASIC SETTING 1st speed rpm: 1050 Rack travel in mm : 11.70...11.80 Del.quantity cm3/: 13.6...13.9 100 s: (13.4...14.2) Spread cm3 : 0.4100 s: (0.7) rpm : 475.0 2nd speed Rack travel in mm: 5.9...6.1 Del.quantity cm3/: 1.4...1.9 100 s: (1.2...2.2) cm3 : 0.4Spread 100 s: (0.7) GUIDE SLEEVE POSITION Control-Lever position Degree: -3 Speed rpm: 800 Rack travel in mm: 0.30...0.70 Governor spring pre-tension Click setting x : ?FULL GOAD DELIV. AT FULL LOAD STOP 1st version rpm : 1050 Speed : 136.5...139.5 Del.quantity 1000 : (134.0...142.0) : 4.00 Spread cm3 1000 : (7.50) RATED SPEED 1st version Control lever position degrees: 38...46 Testing: 1st rack travel in: 10.70 rpm : 1090...1100 Speed

2nd rack travel in: 4.00

Prestroke mm

rpm : 1145...1155 Speed

3rd rack travel in: 4.00

rpm : 1150...1170 Speed

4th rack travel in: 1250

rom : 0.30,..1.40 Speed

LOW IDLE 1 Control lever

position degrees: 18...26

Setting point w/out bumper spring

Speed rpm : 475 Rack travel in mm : 5.5

Testing:

Speed rpm : 100 Minimum rack trave: 19.00

Speed rpm : 475 Rack travel in mm : 5.90...6.10

TORQUE CONTROL

Torque control curve - 1st version

rpm : 1050 1st speed

Rack travel in m: 11.70...11.80

2nd speed rpm : 700

Rack travel in m: 12.10...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700

Del.quantity cm3/: 139.5...143.5 1000 s: (136.5...146.5)

BREAKAWAY

1st version 1mm rack travel less than

full load rack tr: 10.70

rpm : 1090 ... 1100 Speed

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm3/: 150.0...170.0 1000 s: (145.0...175.0)

Rack travel in mm: 19.00...21.00

LOW IDLE

Speed rpm : 475

Rack travel in mm : 5.90...6.10

Del.quantity cm3/: 14.5...19.5 1000 s: (12.0...22.0)

cm3 : 4.50 Spread

1000 s: (7.50)

Remarks:

: JOHN DEERE # RE30252

Adjustment without torque-control spring retainer with 1 mm less control-rod travel. Increase in full-load delivery with torque-control spring retainer.

Starting/full-load transition speed from holding magnet = 450 1/min.

Start-of-delivery mark 12° cam angle after start of delivery cyl. 1.

APPLICATION

Excavator

Note remarks

Test sheet : MB 5,7 n 20 Edition : 26.03.90 : 3.3.88 Replaces Test oil : ISO-4113

: 9 407 083 211 Combination no.

Injection pump

Governor design.

Pump designation : PES6A90D410RS2293 EP type number : 0 410 896 031

Governor

: RSV350...1050A1B1086

: 9 420 083 138 Governer no.

Customer-spec. information

Customer : MERCEDES-BENZ

: 0M352A Engine

TEST BENCH REQUIREMENTS

Test oil

inlet temp. °C : 38...42

Overflow valve

: 1 417 413 000

Inlet press., bar: 1.50

Test nozzle holder

: 0 681 343 009 assembly

Opening

: 172...175 pressure, bar

Test lines : 1 680 750 003

Outside diameter x Wall thickness

: 6.00x2.00x600 x Length mm

(A) Injection pump setting values Insp. values in parentheses Set equal delivery quant. per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25

: (2.10...2.30) Rack travel in mm : 9.00...12.00

Firing order : 1-5-3-6-

: 0-60-120-180-240-300 Phasing

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

rpm: 1050 1st speed

Rack travel in mm : 8.40...8.50

Del.quantity cm3/: 4.4...4.5

100 s: (4.2...4.7)

Spread cm3 : 0.3

100 s: (0.5)

2nd speed rpm : 350.0

Rack travel in mm: 7.4...7.6

Del.quantity cm3/:?

100 s: (?)

cm3 : 0.2Spread

100 s: (0.4)

GUIDE SLEEVE POSITION Control-lever position

Degree: -3

rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 4.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

rpm : 1050 Speed

Del.quantity : 44.0...45.0

1000 : (42.0...47.0)

: 3.00 cm3 Spread

: (5.00) 1000

RATED SPEED

1st version

Control lever

position degrees: 54...62

Testing:

1st rack travel in: 7.40

: 1090...1100 Speed rpm

2nd rack travel in: 4.00

rpm : 1120...1150 Speed

4th rack travel in: 1400

Speed rom : 0.30...1.70

LOW IDLE 1

Control lever position degrees: 24...32 Setting point w/out bumper spring Speed rpm : 350 Rack travel in mm : 7.0 Testing: : 100 Speed rpm Minimum rack trave: 19.00 rpm : 350 Speed Rack travel in mm : 7.40...7.60 Rack travel in mm : 2.00 Speed rpm : 575...635 TORQUE CONTROL Torque control curve - 1st version 1st speed rpm : 1050 Rack travel in m: 8.40...8.50 2nd speed rpm : 500 Rack travel in m: 10.90...11.00 4th speed rpm : 800 Rack travel in m: 9.70...9.90 FUEL DELIVERY CHARACTERISTICS 1st version Speed rpm : 500 Del.quantity cm3/ : 57.0...59.0 1000 s: (54.5...61.5) rpm : 800 Del.quantity cm3/: 50.5...52.5 1000 s: (48.0...55.0) BREAKAWAY 1st version 1mm rack travel less than full load rack tr: 7.40 Speed rpm : 1090...1100 STARTING FUEL DELIVERY : 100 Speed LDW Rack travel in mm : 13.70...14.30 LOW IDLE Speed rpm : 350 Rack travel in mm : 7.40...7.60 Spread cm3 : 2.50 1000 s: (4.50) Remarks:

Wheel loader

APPLICATION

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